AV-8B PILOT

FIGURES

AV-8B PILOT

100. MARINE ATTACK SQUADRON (AV-8B) UNIT TEMPLATE, MISSION STATEMENT, CORE COMPETENCY SKILLS

NOTE

The capabilities defined and described in the core capability and unit template sections are provided to ensure each like-squadron maintains a common base of training and depth of capabilities. When resources permit, and when in the judgment of the commander additional training would significantly increase the unit's war fighting capability, training to a level above these base capabilities is permitted. It is incumbent upon and expected of the commander to balance any increase in the depth of core capabilities against the long-term health and readiness of his unit while staying within his resource constraints.

1. VMA Mission. On order, attack and destroy surface targets, escort friendly aircraft during expeditionary, joint or combined operations.

2. Mission Essential Task List (METL)

a. Conduct Offensive Air Support
b. Conduct Anti-Air Warfare
c. Conduct Assault Support Escort
d. Operate from expeditionary airfields, remote tactical landing sites and naval shipping.

3. Table of Organization. T/O for an AV-8B Squadron is 25 pilots and 16 aircraft. T/O for a Squadron(-) is 16 pilots and 10 aircraft. T/O for a Boat Detachment is 9 pilots and 6 aircraft.

4. Squadron Core Capability. A Core Capable VMA unit squadron is able to generate the following **minimum performance**. T/O and PAA planning factors assume 100% PAA, ≥ 90% in reporting status and ≥ 90% T/O on hand in all MOS's as a minimum. If < 90%, core capability will be degraded by a like percentage.

a. Core Capable Squadron. A Core Capable VMA squadron will generate 39 sorties during surge operations and 26 during sustained operations.

b. Core Capable Squadron Minus. A core competent squadron (-) will generate 24 sorties during surge operations and 16 during sustained operations.

c. Core Capable Detachment. A core competent detachment will generate 15 sorties during surge operations and 10 during sustained operations.

5. VMA Unit Core Skills. Unit Core Skills are depicted in the following table and directly support the Unit METL. Core and core plus skills shall be a determining factor in developing AV-8B T&R training requirements.

Supporting CORE SKILLS	Mission Essential Task List (METL)			
	Conduct OAS	Conduct AAW	Conduct ESC	Exped. Ops
AS	X		X	
AAR	X	X	X	
EW	X	X	X	
LAT	X			
NS High	X	X	X	
AI	X		X	
AR	X			
CAS	X		X	
ASE			X	
BFM		X	X	
ACM		X	X	
FBO				X
FCLP				X
FCLP (N)				X
CQ				X
CQ (N)				X
PT	X		X	
NS Low	X			
SCAR	X		X	

6. VMA Unit Core Competency. A Unit is considered Core Competent when it possesses a **minimum number** of pilots who are proficient in required Core Skills and who hold the required types of Qualifications and Designations.

a. Unit Core Skill Requirements. In order to be considered Core Competent, a Unit must maintain proficiency on the following **minimum number** of pilots in each skill area below:

PILOT CORE SKILL	SQDN	SQDN(-)	DETACHMENT
AS	14	7	7
AAR	16	7	9
EW	14	7	7
LAT	14	7	7
NS High	14	7	7
AI	14	7	7
AR	14	7	7
CAS	14	7	7
ASE	14	7	7
BFM	14	7	7
ACM	14	7	7
FBO	14	7	7
FCLP	12	3	9
FCLP (N)	12	3	9
CQ	12	3	9
CQ (N)	9	0	9
PT	11	6	5
NS Low	4	2	2
SCAR	4	2	2

b. Unit Qualification and Designation Requirements. In order to be considered Core Competent, a Unit must maintain the following **minimum number** of pilots with the designations and qualifications listed below:

DESIGNATION	SQDN	SQDN(-)	DETACHMENT	Remarks
SECTION LEAD	11	6	5	INCL DIVLDR & ACMFL
DIVISION LEAD	6	3	3	
ACMFL	11	6	5	INCLUDES ACTI
MISSION CMDR.	3	2	1	INCLUDES WTI
LSO	5	2	3	INCLUDES T,A&B LSO
LSS	2	1	1	
WTO	3	2	1	INCLUDES WTI
LATI	3	2	1	INCLUDES WTI
NSI	3	2	1	INCLUDES WTI
ACTI	2	1	1	INCLUDES WTI
WTI	1	1	0	FILLING A PTO BILLET

7. Individual Core Skill Proficiency. A pilot attains Core Skill Proficiency when he successfully completes all the events in a core skill, as listed below. To maintain proficiency in a core skill, an individual must also maintain proficiency in at least one event in that core skill. If proficiency is lost, then the pilot shall refly the “R” coded events in that skill area in order to regain proficiency.

	Core										
	AAR	EW	AS	LAT	NSH	AI	AR	CAS	ASE	BFM	ACM
Initial	2	1	3	5	4	3	2	3	2	4	4
Refresher	1	1	2	3	2	1	1	2	1	1	2
T&R CODES	204R 205	S206	213 214R 215R	223R 224R 225 226 227R	232R 233 234 235R	241 242R 243	246R 247	253R 254 255R	260R	271 272 273R 274	283 284R 285 286R

	Core						Core Plus			TOTAL
	FBO	FCLP	FCLPN	CQ	CQN	PT	NSL	SCAR		
Initial	2	1	1	1	2	6	4	2		52
Refresher	1	1	1	1	2	3	2	2		30
T&R CODES	292R 293	296R	396R	298R	396R 397R	312 313 314R 315 316R 317R	422 423R 424 425R	490R 491R		
Note: “R” Denotes Refresher sorties for lost proficiency or qualification.										

8. Individual Qualifications And Designations. The tables that follow serve to delineate the events required for initial and re-qualification of all qualifications and designations. All phase lectures, briefs, squadron training and prerequisites shall be complete prior to completing final events. Qualification and designation letters signed by the commanding officer shall be placed in the NATOPS and APR jackets. Loss of proficiency for all associated core skill events causes the associated qualification to be lost. Regaining the qualification requires a demonstration of proficiency through the “R” coded syllabus. The commanding officer may tailor a syllabus based on the experience of the individual pilot.

Qualification (TRACKING CODE)	**Initial Event Qualification Requirements** All qualifications require a letter signed by the commanding officer to be placed in the NATOPS and APR. **Requalification**: A pilot shall fly all associated qualification "R" coded events. Modification to this standard is at the discretion of the commanding officer.
NATOPS (600)	IAW OPNAV 3710.7 and an annual qualification letter signed by the commanding officer.
Instrument (601)	IAW OPNAV 3710.7 and an annual qualification letter signed by the commanding officer.
LAT QUAL (610)	S220, S221, S222, 223, 224, 225, 226, 227
DAY CQ (611)	S297, 298
NIGHT CQ (612)	S395, 396, 397
ACM QUAL (613)	S270, 271, 272, 273, 274, S275, S276, S277, S278, S279, S280, S281, S282, 283, 284, 285, 286
NS QUAL (HI) (614)	S230, S231, 232, 233, 234, 235
NS QUAL (LO) (615)	S420, S421, 422, 423, 424, 425
TPOD QUAL (616)	S310, S311, 312, 313, 314, 315, 316, 317

Designation (TRACKING CODE)	**Designation Requirements** All designations require a letter signed by the commanding officer to be placed in the pilot's NATOPS jacket and APR.
PMCF (667)	IAW OPNAV 3710.7 and an annual designation letter signed by the commanding officer.
SECTION LEAD (651)	641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651. The PUI shall be complete with all 200 and 300 level sorties prior to starting section lead build-up.
ACMFL (652)	647, 648, 649, 650, 652. Normally accomplished in conjunction with the SL Designation.
DIV LEAD (656)	653, 654, 655, 656
MSN CMDR (657)	657
WTO (660)	IAW the MAWTS-1 Course Catalog.
LAT(I) (661)	IAW the MAWTS-1 Course Catalog.
NS(I) (662)	IAW the MAWTS-1 Course Catalog.
ACT(I) (663)	IAW the MAWTS-1 Course Catalog.
WTI (664)	IAW the MAWTS-1 Course Catalog.
NSI(H) (665)	Used to track restricted NSI's designated under the legacy NSI (High) program.

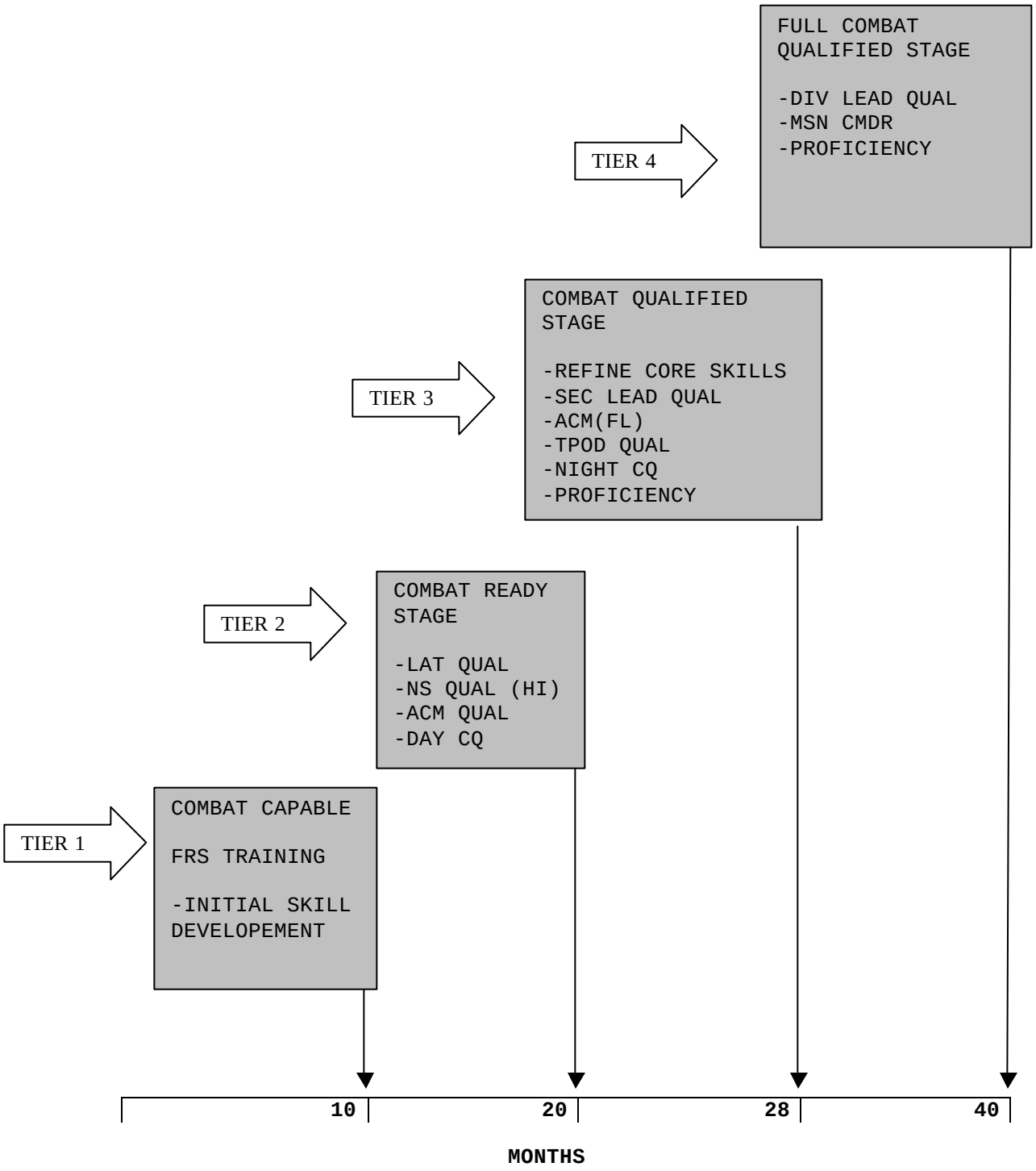

Figure 1. – AV-8B Pilot Notional Training Progression Model.

101. PROGRAMS OF INSTRUCTION (POI) FOR BASIC AND TRANSITION PILOT

WEEKS	COURSE/PHASE	ACTIVITY
1-4	Transit and Pre-load	Training Squadron
5-40	Combat Capable Training	Training Squadron
41-80	Combat Ready Training	Tactical Squadron
81-112	Combat Qualification Training	Tactical Squadron
113-160	Full-Combat Qualification Training	Tactical Squadron

103. POI FOR REFRESHER PILOT

WEEKS	COURSE/PHASE	ACTIVITY
1-8	Combat Capable Training	Training Squadron
9-23	Combat Ready Training	Tactical Squadron
24-34	Combat Qualification Training	Tactical Squadron
35-52	Full-Combat Qualification Training	Tactical Squadron

104. POI FOR MODIFIED REFRESHER PILOT

WEEKS	COURSE/PHASE	ACTIVITY
1-3	Combat Capable Training	Training Squadron
*	Combat Ready Training	Tactical Squadron
*	Combat Qualification Training	Tactical Squadron
*	Full Combat Qualification Training	Tactical Squadron

* = Modified Refresher stages are based upon the full Refresher syllabus modified at the discretion of the squadron Commanding Officer.

105. POI FOR FRS INSTRUCTOR PILOT

WEEKS	COURSE/PHASE	ACTIVITY
1-5	T/AV-8B Instructor Pilot (IP)	Training Squadron

111. SQUADRON LEVEL TRAINING. Ground training requirements are listed separately for each phase of flight training. Training may be completed earlier in stage but should be completed by the appropriate sortie(s).

120. FLIGHT/SIMULATOR/EVENT TRAINING FOR BASIC AND TRANSITION PILOT

1. Combat Capable Phase

STAGE	NO. EVENTS ACFT/SIM	NO. HOURS ACFT/SIM	CRP ACFT/SIM
Basic Qualification (Flight school)	--/--	--/--	25.0/--
Familiarization	18/15	23.6/25.5	7.2/1.5
Instruments	2/4	3.0/6.0	0.8/0.4
Forward Based Operations	2/1	1.8/1.0	1.2/0.1
Field Carrier Landing Practice	7/1	7.0/0.8	2.0/0.2
Formation	7/0	9.1/0.0	2.8/0.0
Low Altitude Tactics	3/2	3.0/3.0	1.2/0.2
Navigation	2/3	2.6/4.5	0.8/0.3
Air-to-Surface	13/9	13.0/13.5	5.2/1.4
Electronic Warfare	1/1	1.0/1.5	0.2/0.1
Air Interdiction	1/2	1.0/3.0	0.4/0.2
Armed Reconnaissance	1/1	1.0/2.0	0.4/0.1
Close Air Support	3/2	3.0/3.0	1.2/0.2
Basic Fighter Maneuvers	5/3	6.0/4.5	2.2/0.3
Air-to-Air Refueling	1/1	1.3/1.5	0.5/0.1
Night Systems	3/2	3.9/3.0	1.4/0.8

Strike	1/0	1.3/0.0	0.5/0.0
Radar	0/1	0.0/1.5	0.0/0.5
NATOPS/Combat Capable Evaluation	0/1	0.0/1.5	0.0/0.6
TOTAL FOR PHASE	**69/49**	**79.6/75.8**	**53.0/7.0**
COMBINED TOTALS	**118**	**155.4**	**60.0**
ACCUMULATION FOR BASIC POI	**118**	**155.4**	**60.0**

2. Combat Ready Phase

STAGE	NO. EVENTS ACFT/SIM	NO. HOURS ACFT/SIM	CRP ACFT/SIM
Familiarization	1/1	1.5/1.5	0.3/0.0
Instrument	0/1	0.0/1.0	0.0/0.0
Navigation	0/1	0.0/1.0	0.0/0.1
Air-to-Air Refueling	2/0	2.0/0.0	0.6/0.0
Electronic Warfare	0/1	0.0/1.0	0.0/0.2
Air-to-Surface	3/3	3.0/3.0	0.9/0.3
Low Altitude Tactics	5/3	5.0/3.0	1.5/0.3
Night Systems	4/2	4.8/2.0	1.6/0.2
Air Interdiction	3/1	3.6/1.0	1.2/0.1
Armed Reconnaissance	2/1	2.0/1.0	0.7/0.1
Close Air Support	3/3	3.0/3.0	1.2/0.3
Assault Support Escort	1/0	1.3/0.0	0.3/0.0
Basic Fighter Maneuvers	4/1	4.0/1.0	1.0/0.1
Air Combat Maneuvering	4/8	4.0/8.0	1.2/0.8
Forward Based Operations	2/2	2.0/2.0	0.6/0.2
Field Carrier Landing Practice	1/1	1.0/1.0	0.5/0.1
Carrier Qualification	1/1	1.0/1.0	0.5/0.1
TOTAL FOR PHASE	**36/30**	**38.2/30.5**	**12.1/2.9**
COMBINED TOTALS	**66**	**68.7**	**15.0**
ACCUMULATION FOR BASIC POI	**184**	**224.1**	**75.0**

3. Combat Qualification Phase

STAGE	NO. EVENTS ACFT/SIM	NO. HOURS ACFT/SIM	CRP ACFT/SIM
Precision Targeting	6/2	6.0/2.0	6.0/1.0
Close Air Support	1/0	1.0/0.0	1.3/0.0
Armed Reconnaissance	1/0	1.0/0.0	1.3/0.0
Air Interdiction	1/0	1.0/0.0	1.3/0.0
Air-to-Surface	2/0	2.0/0.0	2.6/0.0
Assault Support Escort	1/0	1.0/0.0	1.5/0.0
Field Carrier Landing Practice	2/2	3.0/2.0	1.5/0.5
Carrier Qualification	2/2	3.0/2.0	1.5/0.5
Air Combat Maneuvering	1/0	1.0/0.0	1.0/0.0
TOTAL FOR PHASE	**17/6**	**19.0/6.0**	**18.0/2.0**
COMBINED TOTALS	**23**	**25.0**	**20.0**
ACCUMULATION FOR BASIC POI	**207**	**249.1**	**95.0**

4. Full Combat Qualification Phase

STAGE	NO. EVENTS ACFT/SIM	NO. HOURS ACFT/SIM	CRP ACFT/SIM
Night Systems	4/2	4.0/2.0	0.8/0.2
Air Interdiction	4/0	4.0/0.0	1.2/0.0
Close Air Support	1/0	1.0/0.0	0.6/0.0
Armed Reconnaissance	1/0	1.0/0.0	0.6/0.0
Air Combat Maneuvering	2/0	2.0/0.0	0.4/0.0
Large Force Exercise	2/0	3.0/0.0	0.6/0.0
Strike Coordination & Reconnaissance	2/0	2.6/0.0	0.6/0.0
TOTAL FOR PHASE	**16/2**	**17.6/2.0**	**4.8/0.2**
COMBINED TOTALS	**18**	**22.2**	**5.0**
ACCUMULATION FOR BASIC POI	**225**	**271.3**	**100.0**

122. FLIGHT/SIMULATOR/EVENT TRAINING FOR REFRESHER PILOT

1. Combat Capable Phase

STAGE	NO. EVENTS ACFT/SIM	NO. HOURS ACFT/SIM
Familiarization	7/6	9.1/9.5
Instruments	1/1	1.5/1.5
Formation	2/0	2.6/0.0
Low Altitude Tactics	0/2	0.0/3.0
Navigation	1/1	1.3/1.5
Air-to-Surface	4/5	4.0/7.5
Close Air Support	1/1	1.0/1.5
Night Systems	2/2	2.6/3.0
NATOPS/Combat Capable Evaluation	0/1	0.0/1.5
TOTAL FOR PHASE	**18/19**	**22.1/29.0**
COMBINED TOTALS	**37**	**51.1**
ACCUMULATION FOR REFRESHER POI	**37**	**51.1**

2. Combat Ready Phase

STAGE	NO. EVENTS ACFT/SIM	NO. HOURS ACFT/SIM
Familiarization	1/1	1.5/1.5
Air-to-Air Refueling	1/0	1.0/0.0
Electronic Warfare	0/1	0.0/1.0
Air-to-Surface	2/0	2.0/0.0
Low Altitude Tactics	3/1	3.0/1.0
Night Systems	2/2	2.5/2.0
Air Interdiction	1/0	1.0/0.0
Armed Reconnaissance	1/0	1.0/0.0
Close Air Support	2/1	2.0/1.0
Assault Support Escort	1/0	1.3/0.0
Basic Fighter Maneuvers	1/0	1.0/0.0
Air Combat Maneuvering	2/0	2.0/0.0
Forward Based Operations	1/0	1.0/0.0
Field Carrier Landing Practice	1/0	1.0/0.0
Carrier Qualification	1/0	1.0/0.0
TOTAL FOR PHASE	**20/6**	**21.3/6.5**
COMBINED TOTALS	**26**	**27.8**
ACCUMULATION FOR REFRESHER POI	**63**	**78.9**

3. Combat Qualification Phase

STAGE	NO. EVENTS ACFT/SIM	NO. HOURS ACFT/SIM
Precision Targeting	3/0	3.0/0.0
Air-to-Surface	1/0	1.0/0.0
Field Carrier Landing Practice	2/0	3.0/0.0
Carrier Qualification	2/0	3.0/0.0
Air Combat Maneuvering	1/0	1.0/0.0
TOTAL FOR PHASE	**9/0**	**11.0/0.0**
COMBINED TOTALS	**9**	**11.0**
ACCUMULATION FOR REFRESHER POI	**72**	**89.9**

4. Full Combat Qualification Phase

STAGE	NO. EVENTS ACFT/SIM	NO. HOURS ACFT/SIM
Night Systems	2/1	2.0/1.0
Large Force Exercise	1/0	1.5/0.0
Strike Coordination & Reconnaissance	2/0	2.6/0.0
TOTAL FOR PHASE	**5/1**	**6.1/1.0**
COMBINED TOTALS	**6**	***7.1***
ACCUMULATION FOR REFRESHER POI	**78**	**97**

123. FLIGHT/SIMULATOR/EVENT TRAINING FOR MODIFIED REFRESHER PILOT

1. Combat Capable Phase

STAGE	NO. EVENTS ACFT/SIM	NO. HOURS ACFT/SIM
Familiarization	4/5	5.2/8.0
Instruments	0/2	0.0/3.0
Formation	1/0	1.3/0.0
Navigation	1/1	1.3/1.5
Air-to-Surface	2/2	2.0/3.0
NATOPS/Combat Capable Evaluation	0/1	0.0/1.5
TOTAL FOR PHASE	**8/11**	**9.8/17.0**
COMBINED TOTALS	**19**	**26.8**
ACCUMULATION FOR MODREF POI		

Note: *The remaining Modified Refresher stages are based upon the full Refresher syllabus modified at the discretion of the squadron commanding officer.*

124. FLIGHT/SIMULATOR/EVENT TRAINING FOR INSTRUCTOR TRAINING

STAGE	NO. EVENTS ACFT/SIM	NO. HOURS ACFT/SIM
TAV-8B Familiarization	2/2	3.0/2.5
Landing Site Instructor	0/0	0/0
AV-8B Instructor	20/15	30.0/21.0
TOTAL FOR PHASE	**22/17**	**33.0/23.5**
TOTAL FOR IUT POI	**39**	**56.5**

130. GROUND/FLIGHT/SIMULATOR EVENT PERFORMANCE REQUIREMENTS

1. General

a. This manual generalizes mission guidance to allow for local conditions and to allow this manual to remain unclassified. CMC(A) and CG MCCDC encourage squadrons to use the full range of tactics in the tactical manuals and adopt the latest developed and proven tactics.

b. This manual designs the combat capable training phase for an instructor and trainee to maximize training and to minimize syllabus support hours.

c. All flights shall terminate with a comprehensive debrief with emphasis on the aircrew's performance using all evaluation techniques, i.e., TACTS, VTR, participating aircrews, and GCI personnel.

d. Pilots shall fly events annotated with an "N" at/after official sunset. Pilots may fly events annotated with "(N)" at night. Pilots shall fly events annotated with "NS" using night vision devices/systems. Use of night systems is optional for events annotated with "(NS)."

e. An instructor pilot shall evaluate all flights annotated with an "E" per T&R Manual, Administrative, Chapter 4. Instructors are defined as those individuals to whom a Commanding Officer delegates responsibility to assess the aircrews performance during a particular event. Instructors are normally designated flight leaders or MAWTS-1 certified instructors.

f. The squadron training officer shall ensure all Aircrew Evaluation Forms are entered in section 3 of the APR for all initial sorties flown by all transition and refresher pilots for all flights designated by a "T", or

"R" in the flight description. These aircrew Evaluation Forms will replace Aircrew Evaluation Forms previously entered in Section 3.

2. Ordnance. Best judgments within the community have determined ordnance requirements for this manual. In the Combat Capable phase, specific ordnance requirements are delineated for each event. In the Combat Ready through Fully Combat Qualified phases, this is done for simulator events and in those cases where a particular sortie's objectives could not be met without a specific ordnance load. In the remaining cases, individual events in this manual specify ordnance requirements by general category of ordnance to be employed:

a. Gun

b. Free fall

c. Illumination

d. Rockets

e. Precision Guided Munitions (PGM)

f. Self-protect expendables

g. Air Intercept Missiles (AIM)

This approach is designed to give commanders maximum flexibility when attempting to balance training effectiveness with logistical and operational constraints (i.e., NCEA, component availability, range restrictions, weather, etc.). With the category of ordnance, there exists wide latitude with regard to the use of: simulation modes, captive carry, practice, inert and heavy explosive ordnance. Paragraph 160 contains further information on the number and types of ordnance required to ensure adequate total training exposure for each pilot and squadron.

3. Crew Resource Management. Aircrews shall include Crew Resource Management as part of their brief.

131. COMBAT CAPABLE TRAINING

1. AV-8B Familiarization

a. Purpose. Demonstrate familiarity with the systems management requirements of the AV-8B and proficiency in all takeoff and landing modes. Demonstrate the skills required to fly as a wingman in administrative formation. Introduce and practice night V/STOL procedures and techniques.

b. General. Pilots may substitute a T/AV-8B for an AV-8B as specified by the T&R. A qualified FRS Landing Site Instructor (LSI) shall supervise all solos. Pilots shall have ten hours in-model before commencing the night portion of this stage.

c. Ground/Academic Training. FRS FAM and Instrument stage ground school complete. FRS night phase brief prior to night simulators or flights.

d. Simulator/Flight Event Training (33 Events, 49.1 Hours)

SFAM-1 1.5 T,E WST/NWST/RWST S

Goal. Introduce AV-8B cockpit prestart/post start/post flight checklists.
Requirement. Cockpit FAM, UFCS, DDI/MPCD, HUD, COMM/NAV systems, prestart, post start and shutdown checks, and VTR procedures.
Prerequisites. Completion of FRS Familiarization Phase Ground School.
Ordnance. NA
Performance Standards. PUI shall be familiar with all aircraft system functionality and checklist procedures.
External Syllabus Support. NA

SFAM-2 1.5 T,E WST/NWST/RWST S

Goal. Practice normal cockpit check procedures. Introduce blindfold cockpit check.
Requirement. Perform all NATOPS cockpit checklists and blindfold cockpit checks.
Prerequisites. SFAM-001
Ordnance. NA
Performance Standards. PUI shall be familiar with all aircraft system functionality and checklist procedures.
External Syllabus Support. NA

SFAM-3 1.5 T,R,M,E WST/NWST/RWST S

Goal. Introduce CTO, AUTO flap STO, conventional handling procedures, GCA, AUTO flap FNSL, STOL flap FNSL, VTO, hover and VL.
Requirement. (1) Perform multiple takeoffs, landings, and basic familiarization maneuvers. CTO to VFR departure, approach to stalls (clean and dirty), handling (flaps, SAAHS, and altitude hold system) and GCA. Introduce Auto Flap STO's to Auto flap FNSL (3), STOL FNSL (1) and press-up (1). Refresher will complete the tasks as above, with introduction to VTO/Accel to Decel/VL.

Prerequisites. SFAM-002

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SFAM-4 1.5 T,E WST/NWST/RWST S

Goal. Introduce STOL flap STO, AUTO flap VNSL, CL, VTO to Accel, Decel VL and pedal turn. Practice STOL flap FNSL, PNB and press-up.

Requirement. Perform multiple takeoffs and landings. STO to altitude, enroute descent to VFR straight-in. V/STOL to include FNSL (2), Auto flap VNSL (1), CL (1), VTO/Accel to Decel/VL (1). All STO's and FNSL in STOL flaps.

Prerequisites. SFAM-003

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SFAM-5 1.5 T,R,M,E WST/NWST/RWST S

Goal. Introduce G awareness maneuver, aerobatics, VFR break, STOL flap VNSL, RVL and box pattern. Practice V/STOL operations and procedures.

Requirement. Perform G awareness maneuver, aerobatics, takeoffs and landings. STO, aerobatics to VFR break. VSTOL to include STOL flap FNSL (2), Auto flap VNSL (1), STOL flap VNSL (1), RVL (1), VTO/Accel to Decel/VL (1) and press-up (1) with box pattern. Preselected emergencies.

Prerequisites. SFAM-004

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SFAM-6 2.0 T,E WST/NWST/RWST S

Goal. Introduce TACAN approach and emergency procedures. Practice V/STOL operations.

Requirement. Perform multiple takeoffs and landings. Fly a instrument departure to a TACAN approach. VSTOL to include FNSL (2), VNSL (2), RVL (1), CL (1) and VTO/Accel to Decel/VL (1). Preselected emergencies.

Prerequisites. SFAM-005

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SFAM-7 2.0 T,E WST/NWST/RWST S

Goal. Introduce RVTO, braking stop Decel, AWLS and PAR approach. Practice V/STOL operations and emergency procedures.

Requirement. Perform multiple takeoffs and landings. STO to GCA pattern, PAR and AWLS approach. V/STOL to include FNSL (2), VNSL (1), RVL (1), CL (1), RVTO (1), VTO/Accel to Decel/VL (1) and press-up. Preselected emergencies.

Prerequisites. SFAM-006

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SFAM-8 2.0 T,E WST/NWST/RWST S

Goal. Introduce stabs-off RVL. Practice V/STOL operations and emergency procedures.

Requirement. STO, VFR recovery to overhead, FNSL. V/STOL to include AUTO flap VNSL (1), STOL flap VNSL (1), stab-off RVL (1), CL (1), VTO/Accel to Decel/VL (1), press-up (1). Preselected emergencies.

Prerequisites. SFAM-007

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SFAM-9 2.0 T,E WST/NWST/RWST S

Goal. Introduce touch and go landing, roll and go landing and HSSL. Practice V/STOL operations and emergency procedures.

Requirement. Perform VFR recovery to overhead. V/STOL to include FNSL to touch and go (1), HSSL to roll and go (1), VNSL to roll and go (1), CL to roll and go (1), RVL stabs off (1), RVTO to BS Decel/VL (1) and press-up (1). Preselected emergencies.

Prerequisites. SFAM-008

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SFAM-10 2.0 T,R,M,E WST/NWST/RWST S

Goal. Introduce closed circuit navigation course at altitude and out of wind Accel/Decel. Practice V/STOL, roll and go, and touch & go landings.

Requirement. Fly closed circuit navigation course, GCA to an FNSL touch & go (1), VNSL (2), RVL (1) and CL (1). Must do a CL touch & go "with intent to PNB". VTO/Accel to Decel/VL (1). All VTO/Accel & Decel/VL's must be accomplished using out-of-wind technique. No emergencies.

Prerequisites. SFAM-009
Ordnance. NA
Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.
External Syllabus Support. NA

SFAM-11 1.5 T,R,M,E WST/NWST/RWST S

Goal. Emergency procedures review.
Requirement. Perform all previous FAM phase maneuvers with emphasis on emergency procedures application as per NATOPS. Stabs off Decel/VL required.
Prerequisites. SFAM-010
Ordnance. NA
Performance Standards. PUI shall handle all emergencies IAW NATOPS Flight Manual without demonstrating unsafe trends or poor judgment.
External Syllabus Support. NA

SFAM-12 1.5 T,R,M,E WST/NWST/RWST S

Goal. Progress check.
Requirement. Perform all previous FAM phase procedures with emphasis on NATOPS procedures. Preselected emergencies.
Prerequisites. SFAM-011
Ordnance. NA
Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.
External Syllabus Support. NA

FAM-13 1.3 T,E 1 TAV-8B A

Goal. Introduce CTO, STOL flap takeoffs and STOL/AUTO flap landings, conventional handling procedures and press-up.
Requirement. Perform CTO, area orientation, slow flight, clean and dirty stalls, GCA to low approach. V/STOL to include AUTO flap FNSL (1), STOL flap FNSL (1), and press-up (1).
Prerequisites. SFAM-012
Ordnance. NA
Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.
External Syllabus Support. NA

FAM-14 1.3 T,M,E 1 TAV-8B A

Goal. Introduce AUTO flap VNSL and aerobatics. Practice STOL flap FNSL and press-up.
Requirement. Perform STO, aerobatics, VFR entry to the overhead, STOL flap FNSL (2), AUTO flap VNSL (2), and press-up (1).

Prerequisites. FAM-013
Ordnance. NA
Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.
External Syllabus Support. NA

FAM-15 1.3 T,R,E 1 TAV-8B A

Goal. Introduce TACAN approach, CL, RVL and box pattern. Practice aerobatics and VSTOL.
Requirement. Perform STO, aerobatics, TACAN to FNSL. V/STOL to include STO, FNSL (1), CL (2), RVL (2), press-up (1).
Prerequisites. FAM-014
Ordnance. NA
Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.
External Syllabus Support. NA

FAM-16 1.3 T,M,E 1 TAV-8B A

Goal. Introduce closed circuit navigation course and Decel/VL. Practice V/STOL.
Requirement. Perform STO, fly closed circuit navigation course, VFR straight in. V/STOL to include STO, FNSL (1), VNSL (1), RVL (2), Decel/VL (1), press-up (1).
Prerequisites. FAM-015
Ordnance. NA
Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.
External Syllabus Support. NA

FAM-17 1.3 T,R,E 1 TAV-8B A

Goal. Introduce VTO/Accel. Practice closed circuit navigation course and V/STOL.
Requirement. Perform STO, closed circuit navigation course. Recovery with a GCA approach. V/STOL to include STO, VNSL (2), CL (1), RVL (1), VTO/Accel to Decel/VL (1), and press-up (1).
Prerequisites. FAM-016
Ordnance. NA
Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.
External Syllabus Support. NA

FAM-18 1.3 T,R,E 2 TAV-8B A

Goal. Introduce section CTO and administrative formation flight. Practice V/STOL.
Requirement. Perform section CTO, formation and VFR recovery/break. V/STOL to include AUTO flap VNSL (1),

STOL flap VNSL (1), RVL (1), Decel/VL (1), and press-up (1).

Prerequisites. FAM-017, Basic Formation phase brief and exam

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

FAM-19 1.5 T,E 2 TAV-8B A

Goal. Introduce section stream STO, section GCA and individual RVTO. Practice administrative formation, instrument approaches and V/STOL.

Requirement. Perform stream STO, administrative formation, and section GCA. V/STOL to include FNSL (1), VNSL (1), CL (1), RVL (1), RVTO, and Decel/VL (1).

Prerequisites. FAM-018

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

FAM-20 1.3 T,E 2 TAV-8B A

Goal. Introduce braking stop Decel's, roll and go, and touch & go landings. Practice administrative formation and VSTOL.

Requirement. Perform section takeoff, administrative formation, and section GCA. V/STOL to include FNSL (touch & go) (1), VNSL (touch & go) (1), CL (roll & go with PNB) (1), RVL (roll & go) (1), VTO/Accel to braking stop Decel (1), and press-up (1).

Prerequisites. FAM-019

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

FAM-21 1.3 T,E 2 TAV-8B A

Goal. Introduce HSSL and out-of-wind transitions. Practice administrative formation (if omitted on FAM-19 or 20)and V/STOL.

Requirement. Perform section takeoff, administrative formation if required, and VFR overhead to HSSL (1). V/STOL to include SFVNSL (1), AFVNSL (1), CL (1), and RVL (1), VTO/out of wind Accel to out of wind Decel/VL (1) and press-up.

Prerequisites. FAM-020

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

FAM-22 1.3 T,E 1 TAV-8B A

Goal. Introduce stabs off Decel/VL or RVL and heavyweight V/STOL. Practice V/STOL.

Requirement. Perform CTO, TACAN to heavyweight FNSL (roll and go)(1). GCA/Auto flap VNSL (roll and go)(1), GCA/STOL flap VNSL (1), RVL (2), VTO/Accel to Decel/VL. RVL or VL stabs off. Press-up (1).

Prerequisites. FAM-021

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SFAM-23 1.5 T,E WST/NWST/RWST S

Goal. Introduce compound emergencies.

Requirement. Perform all previous FAM phase procedures with emphasis on NATOPS procedures. Preselected compound emergencies.

Prerequisites. SFAM-012

Ordnance. NA

Performance Standards. PUI shall handle all emergencies IAW NATOPS Flight Manual without demonstrating unsafe trends or poor judgment.

External Syllabus Support. NA

SFAM-24 2.0 T,E WST/NWST/RWST S

Goal. Emergency procedures review.

Requirement. Review all previous familiarization maneuvers with emphasis on compound emergencies.

Prerequisites. FAM-020, SFAM-023

Ordnance. NA

Performance Standards. PUI shall perform all maneuvers and procedures IAW NATOPS Flight Manual.

External Syllabus Support. NA

FAM-25 1.3 T,R,M,E 1 TAV-8B A

Goal. V/STOL progress check/safe for solo. Upon completion PUI is conditionally NATOPS qualified.

Requirement. V/STOL to include STO, FNSL (1), AUTO flap VNSL (1), STOL flap VNSL (1), CL (1), RVTO to RVL(1), and VTO/Accel to Decel/VL (1). Stabs off RVL or Decel/VL required.

Prerequisites. FAM-022, SFAM-024, AV-8B open and closed book NATOPS exams.

Ordnance. NA

Performance Standards. PUI shall perform all maneuvers and procedures IAW NATOPS Flight Manual.

External Syllabus Support. NA

FAM-26 1.3 T,R,M,E 1 AV-8B A

Goal. AV-8B V/STOL introduction.

Requirement. Perform CTO to closed circuit navigation course, GCA (low approach), depart re-enter for overhead, FNSL (2), VNSL (2), CL (1), RVL (1), and press-up/box pattern (1).

Prerequisites. FAM-025

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

FAM-27 1.3 T,E 1 AV-8B A

Goal. V/STOL consolidation.

Requirement. Perform STO, aerobatics, INS navigation, TACAN (low approach), depart re-enter for overhead, FNSL (1), AUTO flap VNSL (1), STOL flap VNSL (1), CL (1), RVL (1), VTO/Accel, Decel/VL (1), and press-up (1).

Prerequisites. FAM-026

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

FAM-28 1.3 T,E 1 AV-8B A

Goal. V/STOL consolidation.

Requirement. Perform STO, aerobatics, GCA approach to low approach. Overhead to FNSL (1), AUTO flap VNSL (1), STOLO flap VNSL (1), CL (1), RVL (1), and VTO/Accel to Decel/VL (2).

Prerequisites. FAM-027

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

FAM-29 1.3 T,E 1 AV-8B A

Goal. V/STOL consolidation.

Requirement. Perform CTO, TACAN to low approach, GCA to option. V/STOL to include FNSL (1), AUTO flap VNSL (1), STOL flap VNSL (1), CL (1), RVL (1), VTO/Accel to Decel/VL (out-of-wind) (1), and Press-up (1).

Prerequisites. FAM-028

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SFAM-30 1.5 T,R,E WST/NWST/RWST S N

Goal. Introduce night V/STOL and instrument procedures.

Requirement. Perform cockpit checks, multiple takeoffs, landings and instrument approaches. CTO, instrument departure, TACAN approach, GCA approach, and AWLS approach. VSTOL to include STO to FNSL (1), VNSL (1), RVL (1), CL (1), Decel/VL (1), and press up (1). Preselected emergencies.

Prerequisites. FAM-025, Night FAM Phase brief.
Ordnance. NA
Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

FAM-31 1.3 T,E 1 TAV-8B A N

Goal. Night V/STOL introduction.
Requirement. Perform night orientation. STO, instrument departure, TACAN approach to GCA pattern (2), downwind to VFR pattern. V/STOL to include FNSL (1), VNSL (1), RVL (1), Decel/VL (1), and Press-up (1).

Prerequisites. SFAM-030
Ordnance. NA
Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

FAM-32 1.3 T,E 1 TAV-8B A N

Goal. Night V/STOL consolidation.
Requirement. Perform STO, TACAN, GCA (option), downwind to VFR pattern. V/STOL to include FNSL (1), VNSL (1), RVL (2), VTO/Accel to Decel/VL (1), and Press-up

Prerequisites. FAM-031
Ordnance. NA
Performance Standards. PUI shall perform all maneuvers and procedures IAW NATOPS Flight Manual.

External Syllabus Support. NA

FAM-33 1.3 T,E 1 AV-8B A N

Goal. Solo night V/STOL consolidation.
Requirement. Perform STO, instrument departure to TACAN, GCA pattern (2), downwind to VFR pattern. V/STOL to include FNSL (2), RVL (2), Decel/VL (1), and Press-up

Prerequisites. FAM-032
Ordnance. NA
Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual standard without exhibiting any unsafe trends.

External Syllabus Support. NA

2. Instruments

a. Purpose. In-type instrument rating. Demonstrate ability to fly instruments in accordance with OPNAV 3710 and NATOPS Flight Manual.

b. General. Practice instrument navigation and approach procedures. Pilots shall fly approaches at unfamiliar airfields.

c. Ground/Academic Training. Instrument ground school.

d. Simulator/Flight Event Training (6 Events, 9.0 Hours)

SINST-40 1.5 T,E WST/NWST/RWST S

Goal. Introduce airways navigation and practice instrument approaches.

Requirement. Perform airways navigation during simulated IMC flight conditions. STO, instrument departure, airways navigation, TACAN approach to the option and PAR (1), ASR (1) and AWLS (1).

Prerequisites. FAM-019

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS and OPNAV 3710 standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SINST-41 1.5 T,E WST/NWST/RWST S

Goal. Introduce fuel planning, partial panel, minimum fuel GCA, and unusual attitude flight. Practice airways navigation and instrument approaches.

Requirement. Perform airways navigation during simulated IMC flight conditions. Mission planning, initial takeoff (ITO), climb procedures, INS navigation, partial panel & unusual attitudes, TACAN airways navigation, TACAN approach/missed approach. GCA to touch and go, and minimum fuel GCA to FNSL.

Prerequisites. SINST-040

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS and OPNAV 3710 standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SINST-42 1.5 T,M,E WST/NWST/RWST S

Goal. Practice airways navigation and instrument approaches.

Requirement. Perform airways navigation during simulated IMC flight. Mission planning, ITO, climb procedures, INS navigation, partial panel, unusual attitudes, TACAN airways navigation and TACAN approach/missed approach. GCA to missed approach and minimum fuel GCA to FNSL.

Prerequisites. SINST-041

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS and OPNAV 3710 standard without exhibiting any unsafe trends.

External Syllabus Support. NA

INST-43 1.5 T,E 1 TAV-8B A (N)

Goal. Instruction flight introduction and practice.

Requirement. PUI to perform a round-robin flight to include TACAN approach. PAR (1) to HSSL (1). V/STOL to include Decel/VL (1).

Prerequisites. SINST-042. If flown at night, PUI must have completed FAM-032.

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS and OPNAV 3710 standard without exhibiting any unsafe trends.

External Syllabus Support. NA

INST-44 1.5 T,R,E 1 TAV-8B A (N)

Goal. Introduce minimum fuel GCA. Practice instrument flight procedures.

Requirement. PUI to perform round-robin flight, to include 1 precision approach and 1 non-precision approach at an unfamiliar field. A total of 2 precision and 2 non-precision approaches should be flown (1 must be simulated minimum fuel). V/STOL practice to include STOL flap VNSL (1) and RVL (1).

Prerequisites. SINST-042. If flown at night, PUI must have completed FAM-032.

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS and OPNAV 3710 standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SINST-45 1.5 T,R,M,E WST/NWST/RWST S

Goal. In-type instrument check.

Requirement. PUI to perform a simulated IMC flight, to include a non-precision approach to an unfamiliar field followed by a precision approach at that field or at home field.

Prerequisites. INST-044, required instrument minimums.

Ordnance. NA

Performance Standards. PUI will perform all maneuvers to a NATOPS and OPNAV 3710 standard without exhibiting any unsafe trends.

External Syllabus Support. NA

3. Forward Base Operations (FBO)

a. Purpose. Develop the skills required to operate from Forward Operating Bases (FOB's).

b. General. All events will be under LSS supervision.

c. Ground/Academic Training. FRS FBO phase brief.

d. Simulator/Flight Event Training (3 Events, 2.8 Hours)

SFBO-50 1.0 T,E WST/NWST/RWST S

Goal. Introduce V/STOL operations in an FOB environment.
Requirement. Perform multiple STO's to precision RVL's. Instructor selected emergencies. Syllabus requires the pilot to complete 6 STO's and 6 RVL's.
Prerequisites. FBO phase brief, FAM-025
Ordnance. NA
Performance Standards. Minimum landing grade of 2.1 .
External Syllabus Support. NA

FBO-51 0.8 T,E 1 TAV-8B A

Goal. Introduction to FBO.
Requirement. Perform maximum performance STO’s and precision RVL's (4).
Prerequisites. SFBO-051
Ordnance. NA
Performance Standards. Minimum landing grade of 2.1 .
External Syllabus Support. FBO Facility.

FBO-52 1.0 T,E 1 AV-8B A

Goal. Practice FBO.
Requirement. Perform maximum performance STO’s and precision RVL's (5).
Prerequisites. FBO-051, FAM-029
Ordnance. NA
Performance Standards. Minimum landing grade 2.1 .
External Syllabus Support. FBO facility.

4. Field Carrier Landing Practice (FCLP)

a. Purpose. Develop day shipboard V/STOL skills. Pilots shall brief and use all shipboard procedures and perform Case I approaches to a simulated L-Class ship.

b. General

(1) LSO requirements in accordance with LSO NATOPS.

(2) This stage requires a minimum 35 vertical landings.

c. Ground/Academic Training. FRS FCLP phase brief.

d. Simulator/Flight Event Training (8 Events, 7.2 Hours)

SFCLP-60 0.8 T,E WST/NWST/RWST S

Goal. Introduce FCLP procedures and course rules.
Requirement. Perform multiple STO's and VL's to a simulated L-class ship using Case I recoveries. Minimum of (6) Case I VL’s and (4) maximum performance STO’s. and recoveries required.
Prerequisites. FAM-025, FCLP phase brief.

Ordnance. NA
Performance Standards. Minimum landing grade 2.1 .
External Syllabus Support. NA

FCLP-61 1.0 T,E 1 AV-8B A

Goal. Introduction to V/STOL FCLP operations.
Requirement. Perform shipboard STO's to case I recoveries. Syllabus requires maximum performance STO's (5) and VL's (5). Review launch signals and abort procedures.
Prerequisites. SFCLP-060, FAM-029
Ordnance. NA
Performance Standards. Minimum landing grade 2.1 .
External Syllabus Support. LHA/D facility.

FCLP-62 1.0 T,E 1 AV-8B A

Goal. Practice V/STOL FCLP operations.
Requirement. Perform shipboard STO's to case I recoveries. Syllabus requires maximum performance STO's (5) and VL's (5). Review launch signals and abort procedures.
Prerequisites. FCLP-061
Ordnance. NA
Performance Standards. Minimum landing grade 2.1 .
External Syllabus Support. LHA/D facility.

FCLP-63 1.0 T,E 1 AV-8B A

Goal. Practice V/STOL carrier patterns.
Requirement. Perform shipboard STO's to case I recoveries. Syllabus requires maximum performance STO's (5) and VL's (5). Review launch signals and abort procedures.
Prerequisites. FCLP-062
Ordnance. NA
Performance Standards. Minimum landing grade 2.1 .
External Syllabus Support. LHA/D facility.

FCLP-64 1.0 T,E 1 AV-8B A

Goal. Practice V/STOL carrier patterns.
Requirement. Perform shipboard STO's to case I recoveries. Syllabus requires maximum performance STO's (5) and VL's (5). Review launch signals and abort procedures.
Prerequisites. FCLP-063
Ordnance. NA
Performance Standards. Minimum landing grade 2.1 .
External Syllabus Support. LHA/D facility.

FCLP-65 1.0 T,E 1 AV-8B A

Goal. Practice V/STOL carrier patterns.
Requirement. Perform shipboard STO's to case I recoveries. Syllabus requires maximum performance STO's (5) and VL's (5). Review launch signals and abort

procedures.

Prerequisites. FCLP-064
Ordnance. NA
Performance Standards. Minimum landing grade 2.1 .
External Syllabus Support. LHA/D facility.

FCLP-66 1.0 T,E 1 AV-8B A

Goal. Practice V/STOL carrier patterns .
Requirement. Perform shipboard STO's to case I recoveries. Syllabus requires maximum performance STO's (5) and VL's (5). Review launch signals and abort procedures.
Prerequisites. FCLP-065
Ordnance. NA
Performance Standards. Minimum landing grade 2.1 .
External Syllabus Support. LHA/D facility.

FCLP-67 1.0 T,E 1 AV-8B A

Goal. Day field carrier landing qualification.
Requirement. Perform shipboard STO's to case I recoveries. Syllabus requires maximum performance STO's (5) and VL's (5). Review launch signals and abort procedures.
Prerequisites. FCLP-066
Ordnance. NA
Performance Standards. Minimum landing grade 2.1 .
External Syllabus Support. LHA/D facility.

5. Formation

a. Purpose. Develop proficiency in section tactical formations, night administrative formations and introduce division administrative/tactical formations.

b. General. All training will comply with the NATOPS flight manual and the Harrier Force TACSOP. Low altitude tactical formation flight may be flown in the LAT environment IAW LAT rules of conduct. Refresher can fly formation in FORM-70, 71 or 75 to complete required training.

c. Ground/Academic Training. FRS Formation phase brief.

d. Simulator/Flight Event Training (7 Events, 9.1 Hours)

FORM-70 1.3 T,R,M,E 2 TAV-8B A

Goal. Introduce medium altitude section tactical formation.
Requirement. Perform section stream STO as wingman. Introduce section tactical formations using comm-in procedures. Execute section TACAN approach as wingman to tower downwind, and V/STOL to include RVL (1) and VL (1).
Prerequisites. FAM-029 and formation phase brief.
Ordnance. NA
Performance Standards. PUI shall perform all maneuvers

IAW NATOPS Flight Manual and Harrier Force TACSOP.

External Syllabus Support. NA

FORM-71 1.3 T,E 2 AV-8B A

Goal. Practice medium altitude section tactical

Requirement. Perform section stream STO as wingman. Practice section tactical formations using comm-in procedures. Execute section GCA approach as wingman to landing. V/STOL to include FNSL (1) and Decel/VL (1).

Prerequisites. FORM-070

Ordnance. NA

Performance Standards. PUI shall perform all maneuvers IAW NATOPS Flight Manual and Harrier Force TACSOP.

External Syllabus Support. NA

FORM-72 1.3 T, E 2 AV-8B A

Goal. Introduce comm-out section tactical procedures. Practice medium altitude section tactical formation.

Requirement. Perform section stream STO as wingman. Introduce tactical formations using comm-out procedures. Execute section GCA approach, as wingman, to low approach to landing. V/STOL to include FNSL (1) and VL (1).

Prerequisites. FORM-071

Ordnance. NA

Performance Standards. PUI shall perform all maneuvers IAW NATOPS Flight Manual and Harrier Force TACSOP.

External Syllabus Support. NA

FORM-73 1.3 T,E 2 TAV-8B A

Goal. Introduce low altitude section tactical formation.

Requirement. Perform low altitude maneuvering as a wingman on a closed circuit navigation course. Comm-in/out procedures will be practiced. VSTOL to include Decel/VL(1) and press-up (1).

Prerequisites. FORM-071, LAT-083 if performed in the LAT Environment

Ordnance. NA

Performance Standards. PUI shall perform all maneuvers IAW NATOPS Flight Manual and Harrier Force TACSOP.

External Syllabus Support. NA

FORM-74 1.3 T,E 2 AV-8B A

Goal. Practice low altitude section tactical formation.

Requirement. Perform low altitude maneuvering as a wingman on a closed circuit navigation course. Comm-in/out procedures will be practiced. V/STOL to include Decel/VL(1) and press-up (1).

Prerequisites. FORM-073, LAT-084 if performed in the LAT environment.

Ordnance. NA

Performance Standards. PUI shall perform all maneuvers IAW NATOPS Flight Manual and Harrier Force TACSOP.

External Syllabus Support. NA

FORM-75 1.3 T,E 4 TAV-8B A

Goal. Introduce division formation.
Requirement. Perform division stream STO as a wingman, division administrative/tactical formation and overhead. V/STOL to include RVL (1) and Decel/VL(1).
Prerequisites. FORM-072.
Ordnance. NA
Performance Standards. PUI shall perform all maneuvers IAW NATOPS Flight Manual and Harrier Force TACSOP.
External Syllabus Support. NA

FORM-76 1.3 T, E 2 TAV-8B A N

Goal. Introduce night administrative formation.
Requirement. Perform section takeoff, administrative formation to include break-up and rendezvous, section TACAN approach to GCA as a wingman. V/STOL to include RVL(2) and Decel/VL(1).
Prerequisites. FORM-072, FAM-032.
Ordnance. NA
Performance Standards. PUI shall perform all maneuvers IAW NATOPS Flight Manual and Harrier Force TACSOP.
External Syllabus Support. NA

6. Low Altitude Tactics (LAT)

a. Purpose. Develop low altitude flying skills.

b. General. Pilots shall fly in accordance with T&R Manual, Administrative directed LAT rules of conduct. BAM / BASH data and route obstructions shall be incorporated into the brief.

c. Ground/Academic Training. Complete MAWTS-1 LAT lectures (1-4) and FRS LAT phase brief.

d. Simulator/Flight Event Training (5 Events, 6.0 Hours)

SLAT-80 1.5 T,R,E WST/NWST/RWST S

Goal. Introduce basic low altitude maneuvers and flight rules.
Requirement. Perform low altitude flight maneuvers while flying a closed circuit LAT circuit. Introduce straight and level flight, level turns, climb to cope, ridgeline crossing, terrain masking, and MAC. Flight should be flown in a mountainous terrain database. Instructor selected emergencies during recovery phase only.
Prerequisites. FAM-025, MAWTS-1 LAT lectures and FRS LAT phase brief.
Ordnance. NA
Performance Standards. PUI shall perform all maneuvers IAW MAWTS-1 LAT lectures.
External Syllabus Support. NA

SLAT-81 1.5 T,R,E WST/NWST/RWST S

Goal. Introduce 3D LAT maneuvers.

Requirement. Introduce 3D and vertical maneuvering to include: unloaded rolls, vertical jinks (VJ), straight oblique jinks (SOJ), reverse oblique jinks (ROJ), turning oblique jinks (TOJ), guns jinks, SCAT maneuver, and break turn missile defense procedures. The 50 percent rule, 10-degree rule and the dive recovery rules will be introduced during this period. Flight should be flown in a mountainous terrain database. Instructor selected emergencies during recovery phase only.

Prerequisites. SLAT-080.

Ordnance. NA

Performance Standards. PUI shall perform all maneuvers IAW MAWTS-1 LAT lectures.

External Syllabus Support. NA

LAT-82 1.0 T,E 1 TAV-8B A

Goal. Introduce LAT environment and rules of conduct.

Requirement. Perform low altitude flight maneuvers while flying a closed circuit LAT circuit. Introduce straight and level flight, level turns, climb to cope, ridgeline crossing and terrain masking. V/STOL to include Decel/VL (1).

Prerequisites. FCLP-064, FBO-055, SLAT-081

Ordnance. NA

Performance Standards. PUI shall perform all maneuvers IAW MAWTS-1 LAT lectures.

External Syllabus Support. Approved LAT course.

LAT-83 1.0 T,E 1 TAV-8B A

Goal. Introduce 3D LAT maneuvers.

Requirement. Introduce 3D and vertical maneuvering to include: unloaded rolls, vertical jinks (VJ), straight oblique jinks (SOJ), reverse oblique jinks (ROJ), turning oblique jinks (TOJ), guns jinks and SCAT maneuver. V/STOL to include Decel/VL (1).

Prerequisites. LAT-082

Ordnance. NA

Performance Standards. PUI shall perform all maneuvers IAW MAWTS-1 LAT lectures.

External Syllabus Support. Approved LAT course.

LAT-84 1.0 T,E 2 AV-8B A

Goal. Practice basic low altitude maneuvers.

Requirement. Practice 3D and vertical maneuvering to include: level turns, ridgeline crossings, terrain masking, unloaded rolls, vertical jinks (VJ), straight oblique jinks (SOJ), reverse oblique jinks (ROJ), turning oblique jinks (TOJ). V/STOL to include Decel/VL (1).

Prerequisites. LAT-083

Ordnance. NA

Performance Standards. PUI shall perform all maneuvers IAW MAWTS-1 LAT lectures.

External Syllabus Support. Approved LAT course.

7. Navigation

a. Purpose. Demonstrate the ability to plan and execute navigation flights using aeronautical charts, visual checkpoints, and the inertial navigational system.

b. General. Instruction should focus on task management in the low altitude environment, specifically navigation, systems management, and precise fuel planning. Flights may be conducted in the LAT environment IAW LAT rules of conduct.

c. Ground/Academic Training. FRS Navigation phase brief which includes a map interpretation and terrain analysis course (MITAC).

d. Simulator/Flight Event Training (5 Events, 7.1 Hours)

SNAV-90 1.5 T,E WST/NWST/RWST S

Goal. Introduce low altitude navigation using both systems and visual navigation techniques.

Requirement. Perform INS and visual navigation on a Military Training Route (MTR) with a preplanned time–on-target (TOT). Introduce climb profile, cruise profile and a tactical descent. IP/TGT attack using a level over-flight. Instructor selected emergencies during recovery phase only.

Prerequisites. SLAT-081, Navigation phase brief

Ordnance. NA

Performance Standards. PUI shall be +/- 30 seconds of TOT and +/- 500 lbs on fuel planning.

External Syllabus Support. NA

SNAV-91 1.5 T,E WST/NWST/RWST S

Goal. Practice low altitude navigation.

Requirement. Perform INS and visual navigation over MTR with a preplanned TOT. Practice map/chart interpretation, visual check point identification route control and initial point/target acquisition. IP/TGT attack using a level over-flight. Instructor selected emergencies during recovery phase only.

Prerequisites. SNAV-090

Ordnance. NA

Performance Standards. PUI shall be +/- 30 seconds of TOT and +/- 500 lbs on fuel planning.

External Syllabus Support. NA

SNAV-92 1.5 T,R,M,E WST/NWST/RWST S

Goal. Practice low altitude navigation.

Requirement. Perform INS and visual navigation on an MTR with a preplanned TOT. Practice map/chart interpretation, visual check point identification route

control and initial point/ target acquisition. IP/TGT attack using a level over-flight. Instructor selected emergencies during recovery phase only.

Prerequisites. SNAV-091

Ordnance. NA

Performance Standards. PUI shall be +/- 30 seconds of TOT and +/- 500 lbs on fuel planning.

External Syllabus Support. NA

NAV-93 1.3 T,E 2 AV-8B A

Goal. Introduce low altitude navigation on a MTR while being monitored by a chase aircraft.

Requirement. Perform INS and visual navigation on an MTR with a preplanned TOT. Introduce climb profile, cruise profile and a tactical descent. IP/TGT attack using a level over-flight. V/STOL to include RVL (2) and press-up (1).

Prerequisites. SNAV-092, LAT-084 if performed in the LAT environment.

Ordnance. NA

Performance Standards. PUI shall be +/- 30 seconds of TOT and +/- 500 lbs on fuel planning.

External Syllabus Support. Approved MTR.

NAV-94 1.3 T,R,M,E 2 AV-8B A

Goal. Practice low altitude navigation on a MTR while being monitored by a chase aircraft.

Requirement. Perform INS and visual navigation over a planned low level route with a preplanned TOT. Flown solo with a flight lead chase. IP/TGT attack using a level over-flight. V/STOL to include RVL (1) and press-up (1).

Prerequisites. NAV-093, LAT-084 if performed in the LAT environment.

Ordnance. NA

Performance Standards. PUI shall be +/- 30 seconds of TOT and +/- 500 lbs on fuel planning.

External Syllabus Support. Approved MTR.

8. Air-to-Surface

a. Purpose. Create a PUI who is proficient in Basic Conventional Weapons Delivery (BCWD) skills, exposed to Tactical Conventional Weapons Delivery (TCWD) profiles and Precision Guided Munitions (PGM). In addition, develop proficiency in section tactical formation, contract adherence and communication.

b. General. Flight conduct and air-to-ground weapon delivery validation will be conducted IAW AV-8B TACMAN and the Harrier Force TACSOP. Scored ranges or no drop weapons scoring will be used to the maximum extent possible. TCWD sorties will use tactical targets. If scoring is unavailable, performance criteria will be based on Harrier Force TACSOP evaluation criteria.

c. Ground/Academic Training. FRS Air-to-Ground phase ground school.

d. Simulator/Flight Event Training (22 Events, 26.5 Hours)

SAS-100 1.5 T,E WST/NWST/RWST S

Goal. Introduce weapon system programming and ordnance release planning. Introduce high angle raked range pattern utilizing BCIP/GCIP mode.

Requirement. Perform 45 degree dive deliveries using GCIP/BCIP mode. Introduce weapons system set-up.

Prerequisites. SEW-125, Pre-tactics and Air-to-Ground Phase ground school.

Ordnance. 12 Mk-76, 60 Chaff, 60 Flares

Performance Standards. CEP about MPI of <14 mR

External Syllabus Support. NA

SAS-101 1.5 T,E WST/NWST/RWST S

Goal. Introduce low angle raked range pattern utilizing RCIP/GCIP mode.

Requirement. Perform 10 degree dive deliveries using GCIP/RCIP mode.

Prerequisites. SAS-100, SLAT-081

Ordnance. 12 Mk-76, 60 Chaff, 60 Flares

Performance Standards. CEP about MPI of <14 mR

External Syllabus Support. NA

SAS-102 1.5 T,R,M,E WST/NWST/RWST S

Goal. Introduce high angle TV AUTO/CCIP weapons release using the Angle Rate Bombing System (ARBS). Introduce gun strafe.

Requirement. Perform 45 degree dive deliveries using AUTO/CCIP mode of the ARBS. Introduce weapons release "cascade" plan, gun strafe.

Prerequisites. SAS-101

Ordnance. 6 Mk-82, 300 rnds 25mm, 60 Chaff, 60 Flares

Performance Standards. CEP about MPI of <14 mR

External Syllabus Support. NA

SAS-103 1.5 T, E WST/NWST S

Goal. Practice high angle AUTO/CCIP deliveries and introduce Laser Sight Tracker (LST) usage, and 5.0" rocket deliveries.

Requirement. Perform 45 degree dive deliveries using AUTO/CCIP mode. Introduce AUTO INS and LST weapons release. Emphasis on a "cascade" plan for weapons release. Introduce rocket deliveries.

Prerequisites. SAS-102

Ordnance. 6 Mk-82, 5" Rkts, 60 Chaff, 60 Flares

Performance Standards. CEP about MPI of <14 mR

External Syllabus Support. NA

SAS-104 1.5 T,R,M,E WST/NWST S

Goal. Introduce low angle raked range pattern utilizing

TV AUTO/CCIP/RCIP/GCIP mode & low angle gun employment.

Requirement. Introduce 10 degree dive deliveries low angle gun strafe.

Prerequisites. SAS-103
Ordnance. 12 Mk-76, 300 rnds 25mm, 60 Chaff, 60 Flares
Performance Standards. CEP about MPI of <14 mR
External Syllabus Support. NA

AS-105 1.0 T,R,M,E 1 TAV-8B A

Goal. Introduce high angle GCIP/BCIP mode deliveries.

Requirement. Perform 45 degree computed dive deliveries utilizing GCIP/BCIP mode. V/STOL to include RVL (1) and VL (1).

Prerequisites. FORM-075, SAS-103
Ordnance. 6 Mk-76
Performance Standards. CEP about MPI of <14 mR
External Syllabus Support. Scored bombing range.

AS-106 1.0 T,R,E 2 AV-8B A

Goal. Practice high angle TV AUTO & CCIP deliveries.

Requirement. Perform 45 degree computed dive deliveries utilizing TV AUTO & CCIP mode. V/STOL to include VNSL (1) and RVL (1).

Prerequisites. AS-105
Ordnance. 12 Mk-76, 40 Flares
Performance Standards. CEP about MPI of <14 mR
External Syllabus Support. Scored bombing range.

AS-107 1.0 T,E 2 AV-8B A

Goal. Introduce LST usage and practice high angle AUTO/CCIP mode deliveries.

Requirement. Perform 45 degree computed dive deliveries utilizing AUTO/CCIP mode. V/STOL to include VNSL (1) and VL (1). Optional high angle GAU-12 employment.

Prerequisites. AS-106
Ordnance. 12 Mk-76, 300 rnds 25mm , 40 Flares
Performance Standards. CEP about MPI of <14 mR
External Syllabus Support. Scored bombing range/LASER.

AS-108 1.0 T,E 1 TAV-8B A

Goal. Introduce low angle GCIP/RCIP/BCIP mode

Requirement. Introduce 10 degree computed dive deliveries utilizing GCIP/RCIP/BCIP mode. V/STOL to include FNSL (1) and RVL (1).

Prerequisites. SAS-104
Ordnance. 6 Mk-76
Performance Standards. CEP about MPI of <14 mR
External Syllabus Support. Scored bombing range.

AS-109 1.0 T,R,M,E 2 AV-8B A

Goal. Practice low angle computed deliveries. Introduce GAU-12 employment.

Requirement. Perform 10 degree computed dive deliveries utilizing TV AUTO/CCIP mode with MK-76s. Optional low angle GAU-12 employment. V/STOL to include VNSL (1) and VL (1).

Prerequisites. AS-108

Ordnance. 12 Mk-76, 300 rnds 25mm, 40 Flares

Performance Standards. CEP about MPI of <14 mR

External Syllabus Support. Scored bombing range.

SAS-110 1.5 T,R,E WST/NWST S

Goal. Introduce high angle night unaided deliveries on an illuminated raked range.

Requirement. Perform high angle night unaided deliveries on a raked range using the LST.

Prerequisites. SAS-103, SFAM-030

Ordnance. 12 Mk-76, 300 rnds 25mm, 60 Chaff, 60 Flares, ALQ-164

Performance Standards. CEP about MPI of <14 mR

External Syllabus Support. NA

AS-111 1.0 T,E 1 TAV-8B A N

Goal. Introduce high angle night unaided deliveries on an illuminated raked range.

Requirement. Perform high angle night unaided BCIP/GCIP deliveries on an illuminated raked range. V/STOL to include RVL (1) and VL (1).

Prerequisites. AS-107, FAM-033, SAS-110

Ordnance. 6 Mk-76, 6 Mk-4 cartridges

Performance Standards. CEP about MPI of <14 mR

External Syllabus Support. Illuminated bombing range.

SAS-112 1.5 T,R,E WST/NWST/RWST S

Goal. Introduce medium altitude transition maneuvers and Laser Guided Bomb deliveries.

Requirement. Perform ramp downs and LGB delivery profiles to medium altitude releases.

Prerequisites. SAS-102

Ordnance. 4 Mk-82, 2 GBU-16, 60 Chaff, 60 Flares

Performance Standards. CEP about MPI of <14 mR

External Syllabus Support. NA

AS-113 1.0 T,E 1 TAV-8B A

Goal. Introduce transition maneuvers to medium altitude deliveries.

Requirement. Introduce ramp down and cruise climbs to high angle computed dive deliveries utilizing GCIP/BCIP mode. V/STOL to include VNSL (1) and RVL (1).

Prerequisites. AS-107, SAS-112, SAS-115

Ordnance. 6 Mk-76

Performance Standards. CEP about MPI of <14 mR

External Syllabus Support. Scored bombing range if available

AS-114 1.0 T,E 2 AV-8B A

Goal. Practice transition maneuvers to dive deliveries. Introduce live ordnance deliveries.

Requirement. Practice ramp down and cruise climbs to high angle computed dive deliveries utilizing AUTO/CCIP mode with general purpose bombs. GAU-12 employment mandatory if not completed on AS-107 or AS-109; otherwise optional. V/STOL to include RVL(1) and VL (1).

Prerequisites. AS-113
Ordnance. 4 Mk-82, 40 Flares
Performance Standards. Weapon delivery IAW air-to-ground weapon delivery validation as defined in the Harrier Force TACSOP.

External Syllabus Support. Live impact area.

SAS-115 1.5 T,R,E WST/NWST/RWST S

Goal. Introduce low altitude transition maneuvers and Loft deliveries.

Requirement. Perform low altitude cruise climbs, pop-up's and loft deliveries.

Prerequisites. SNAV-92,SAS-104, SLAT-081
Ordnance. 4 Mk-82, 60 Chaff, 60 Flares
Performance Standards. CEP about MPI of <14 mR
External Syllabus Support. NA

SAS-116 1.5 T,E NWST/RWST S

Goal. Introduce IR/LASER maverick deliveries.

Requirement. Introduce maverick deliveries and HOTAS.

Prerequisites. SAS-112.
Ordnance. 2 AGM-65E, 2 AGM-65F, 60 Chaff, 60 Flares
Performance Standards. 50% success rate.

External Syllabus Support. NA

AS-117 1.0 T,E 2 AV-8B A

Goal. Introduce LASER Guided Bomb delivery profiles.

Requirement. Introduce LASER Guided Training Round (LGTR) deliveries as a wingman from medium altitude. V/STOL to include VL (1).

Prerequisites. AS-113
Ordnance. 2 LGTR, 40 Flares
Performance Standards. Hit accuracy within 50 feet.
External Syllabus Support. Laser safe bombing range.

AS-118 1.0 T,E 2 TAV-8B A

Goal. Introduce section medium altitude target area mechanics.

Requirement. Introduce section medium altitude target area mechanics. Practice 45 degree computed dive deliveries utilizing GCIP/BCIP. V/STOL to include RVL

Prerequisites. AS-107
Ordnance. 12 Mk-76

Performance Standards. Conducts attacks as briefed, provides mutual support and effect on assigned target.
External Syllabus Support. Bombing range.

AS-119 1.0 T,R,E 4 AV-8B A

Goal. Introduce Division medium altitude target area mechanics.
Requirement. Introduce medium altitude division target area mechanics. Practice 45 degree computed dive deliveries utilizing AUTO/CCIP. V/STOL to include FNSL
Prerequisites. AS-118
Ordnance. 24 Mk-76, 80 Flares
Performance Standards. Conducts attacks as briefed, provides mutual support and effect on assigned target. CEP about MPI of <14 mR.
External Syllabus Support. Scored bombing range if available

AS-120 1.0 T,E 2 TAV-8B A

Goal. Introduce section low altitude target area mechanics.
Requirement. Introduce section low altitude target area mechanics. Practice 10 degree computed dive deliveries utilizing GCIP/BCIP. V/STOL to include RVL (1).
Prerequisites. SAS-115, AS-118, LAT-084 if performed in the LAT environment.
Ordnance. 12 Mk-76
Performance Standards. Conducts attacks as briefed, provides mutual support and effect on assigned target. CEP about MPI of <14 mR.
External Syllabus Support. Scored bombing range if available.

AS-121 1.0 T,E 2 AV-8B A

Goal. Practice section low altitude target area
Requirement. Practice section low altitude target area mechanics. Practice 10 degree computed dive deliveries utilizing CCIP/GCIP/RCIP/BCIP. V/STOL to include VNSL (1) and VL (1).
Prerequisites. AS-120, LAT-084 if performed in the LAT environment.
Ordnance. 12 Mk-76, 40 Flares
Performance Standards. Conducts attacks as briefed, provides mutual support and effect on assigned target. CEP about MPI of <14 mR.
External Syllabus Support. Scored bombing range if available.

9. Electronic Warfare (EW)

a. Purpose. Introduce the AV-8B EW suite and threat reaction maneuvers.

b. General. PUI should be exposed to numerous aspects of flight planning

to include: RADAR threat capabilities and limitations, SAM timelines, RADAR terrain masking and defensive maneuvers and canopy code application. The simulator period is designed as an exposure event to the following items:

(1) Demonstrate proper set-up, BIT, and employment of the ALR-67, ALE-39 and ALQ-167.

(2) Preemptive and reactive maneuvers against surface to air systems.

(3) Engaged communication procedures.

(4) Pre-flight planning and threat reaction matrix creation.

c. Ground/Academic Training. FRS Pre-Tactics phase ground school.

d. Simulator/Flight Event Training (2 Events, 2.5 Hours)

SEW-125 1.5 T,E WST/NWST/RWST S

Goal. Introduce the EW suite of the AV-8B.

Requirement. Introduce cockpit procedures for the ALE-39/ALR-67/ALQ-164 systems. Introduce SAM, AAA, and AI threats using warning displays, tones and lights. Introduce threat reaction against known and unknown range threat systems and ordnance jettison criteria. If flown before Air-to-Surface phase ordnance will be used for jettison purposes only.

Prerequisites. Pre-tactics phase brief.

Ordnance. 4 Mk-82 (for jettison only if not A/S ground school complete), self-protect expendables, ALQ-164

Performance Standards. PUI familiar with EW suite and threat counter-tactics IAW AV-8B TACMAN.

External Syllabus Support. NA

EW-126 1.0 T,E 2 AV-8B A

Goal. Introduce medium and low altitude Threat Reaction as a wingman. Review the AV-8B EW suite set-up and use.

Requirement. Perform threat reaction maneuvers against a range known Radar SAM and AAA/MANPAD positions. Emphasis should be placed on decision point adherence based on briefed threat matrix, effective section communication and mutual support. Low altitude threat reaction will not be conducted in the LAT environment. V/STOL to CL (1)and VL (1).

Prerequisites. SEW-125.

Ordnance. NA.

Performance Standards. Properly executes countertactics maneuvers based on cockpit indications and range to threat, effectively communicates and provides mutual support.

External Syllabus Support. EW Range.

10. Aerial Interdiction

a. Purpose. Develop initial proficiency in the tactical employment of the AV-8B in the air interdiction role in the low and medium altitude

regimes. Specific sorties require either medium or low altitude tactics based on the specified threat or weather condition.

b. General. At the completion of this stage the PUI should be able to:

(1) Demonstrate proficiency as a wingman in the execution of section, day air interdiction missions at both low and medium altitude.

(2) Deliver conventional ordnance on tactical targets demonstrating the proper use of sensors / systems.

c. Ground/Academic Training. FRS OAS Phase Ground School.

d. Simulator / Flight Event Training (3 Events, 4.0 Hours)

SAI-130 1.5 T,E WST/NWST/RWST S

Goal. Introduce medium altitude AI.
Requirement. Perform medium altitude AI in a low threat environment.
Prerequisites. SAS-112, SEW-125 and NAV-93.
Ordnance. 2 GBU-12, 300 rnds 25mm, 60 Chaff, 60 Flares
Performance Standards. CEP less than 45'. Effect on assigned target and proper threat countertactics.

External Syllabus Support. NA

SAI-131 1.5 T,E WST/NWST/RWST S

Goal. Introduce low altitude AI and cluster munitions.
Requirement. Perform low altitude AI in a low threat environment. Introduce cluster munitions utilizing FMU-140 fuze.
Prerequisites. SAS-116 and EW-126.
Ordnance. 6 CBU-99/100, 300 rnds 25mm, 60 Chaff, 60 Flares, ALQ-164
Performance Standards. Effect on assigned target and proper threat countertactics. CEP about MPI of <14 mR.
External Syllabus Support. NA

AI-132 1.0 T,E 2 AV-8B A

Goal. Introduce medium altitude Aerial Interdiction
Requirement. Perform medium altitude AI utilizing high angle deliveries in a low threat scenario. V/STOL to include FNSL (1) and VL (1).
Prerequisites. AS-119, SAS-116, SAI-131
Ordnance. 8 BDU-45, 40 Flares
Performance Standards. Effect on assigned target and proper threat countertactics.
External Syllabus Support. Scored bombing range if available.

11. Armed Reconnaissance

a. Purpose. Develop initial proficiency in the tactical employment of the AV-8B in the armed reconnaissance role as a wingman in the medium and low altitude environment. Specific sorties require either medium or low altitude

tactics based on the specified threat or weather condition.

b. General. At the completion of this stage the PUI should be able to:

(1) Demonstrate proficiency as a wingman during armed reconnaissance missions.

(2) Demonstrate proper delivery of ordnance utilizing direct, transition or TACSOP described “in-flight” attacks.

(3) Demonstrate proficiency deriving and applying reactive weaponeering IAW the Harrier Force TACSOP.

(4) Demonstrate the use of systems management, effective tactical communication and reporting procedures.

c. Ground/Academic Training. FRS OAS Phase Ground School.

d. Simulator / Flight Event Training (2 Events, 3.0 Hours)

SAR-135 1.5 T,E WST/NWST/RWST S

Goal. Introduce Armed Reconnaissance (AR).
Requirement. Introduce medium altitude AR in a low threat environment.
Prerequisites. SAS-112 SEW-125 and SNAV-92.
Ordnance. 6 Mk-82, 300 rnds 25mm, 60 Chaff, 60 Flares, ALQ-164
Performance Standards. Proper search of ARA, attacks conducted based on assigned precedence, proper threat countertactics and effect on target.
External Syllabus Support. NA

AR-136 1.0 T,E 2 AV-8B A

Goal. Introduce medium altitude Armed Reconnaissance
Requirement. Introduce AR utilizing high angle deliveries in a low threat scenario. V/STOL to include VL
Prerequisites. AS-119, EW-126, SAR-135 and NAV-93.
Ordnance. 12 Mk-76, 40 Flares
Performance Standards. Proper search of ARA, attacks conducted based on assigned precedence, proper threat countertactics and effect on target.
External Syllabus Support. Scored bombing range if available.

12. Close Air Support

a. Purpose. Develop initial proficiency in the tactical employment of the AV-8B in the close air support role in the low and medium altitude regimes. Specific sorties require either medium or low altitude tactics based on the specified threat or weather condition.

b. General. At the completion of this stage the PUI should be able to:

(1) Demonstrate proficiency in the execution of section day close air support missions at both medium and low altitude.

(2) Deliver conventional ordnance on tactical targets demonstrating the proper use of sensors / systems.

(3) Use the TACSOP to develop reactive weaponeering for various target arrays.

c. Ground/Academic Training. FRS OAS Phase Ground School.

d. Simulator / Flight Event Training (5 Events, 6.0 Hours)

SCAS-140 1.5 T,R,E WST/NWST/RWST S

Goal. Introduce medium altitude Close Air Support (CAS).
Requirement. Perform CAS utilizing 45/30 degree dive deliveries.
Prerequisites. SAS-112 SEW-125 and SNAV-92.
Ordnance. 6 Mk-82, 300 rnds 25mm, 60 Chaff, 60 Flares, ALQ-164
Performance Standards. Effect on target, no unsafe weapons release, proper corrections from the mark and acceptable attack timing and deconfliction.
External Syllabus Support. NA

SCAS-141 1.5 T,E WST/NWST/RWST S

Goal. Introduce low altitude CAS
Requirement. Perform CAS utilizing 10/20 degree dive deliveries with a low threat scenario.
Prerequisites. SCAS-140, SAS-115; LAT-081 if performed in the LAT environment.
Ordnance. 6 Mk-82, 300 rnds 25m, 60 Chaff, 60 Flares, ALQ-164
Performance Standards. Effect on target, no unsafe weapons release, proper corrections from the mark and acceptable attack timing and deconfliction.
External Syllabus Support. NA

CAS-142 1.0 T,E 2 TAV-8B A

Goal. Introduce medium altitude CAS.
Requirement. As a single aircraft, perform CAS utilizing high angle deliveries in a low threat scenario. V/STOL to include RVL (1).
Prerequisites. AS-119, EW-126, SAS-140 and NAV-93.
Ordnance. 12 Mk-76
Performance Standards. Effect on target, no unsafe weapons release, proper corrections from the mark and acceptable attack timing and deconfliction.
External Syllabus Support. Scored bombing range if available.

CAS-143 1.0 T,E 2 AV-8B A

Goal. Practice medium altitude CAS.
Requirement. As a section, perform CAS utilizing high

angle deliveries in a low threat scenario. V/STOL to include VL (1).

Prerequisites. AS-142

Ordnance. 12 Mk-76, 40 Flares

Performance Standards. Effect on target, no unsafe weapons release, proper corrections from the mark and acceptable attack timing and deconfliction.

External Syllabus Support. Scored bombing range if available.

CAS-144 1.0 T,E 2 AV-8B A

Goal. Introduce low altitude CAS.

Requirement. Perform CAS utilizing low angle deliveries in a low threat scenario. V/STOL to include VL (1) and CL (1).

Prerequisites. CAS-143, AS-121, SCAS-141

Ordnance. 12 Mk-76, 40 Flares

Performance Standards. Effect on target, no unsafe weapons release, proper corrections from the mark and acceptable attack timing and deconfliction.

External Syllabus Support. Scored bombing range if available.

13. Basic Fighter Maneuvers

a. Purpose. Develop initial proficiency in Basic Fighter Maneuvers (BFM), weapons employment and engaged section tactics. In addition, develop initial proficiency in Ground Controlled Intercept (GCI) techniques.

b. General. Pilots shall complete this training in accordance with T&R Manual, Administrative, rules of conduct and NATOPS Flight Manual. PUI shall fly all the events in this stage with an ACTI. Aircraft handling characteristics, pertinent limitations and departure avoidance techniques will be briefed for each sortie. TVC will only be allowed on certain sorties and never below the specified soft deck.

c. Ground/Academic Training. FRS Air-to-Air Ground School.

d. Simulator / Flight Event Training (9 Events, 10.5 Hours)

SBFM-150 1.5 T,E WST/NWST/RWST S

Goal. Introduce Air-to-Air weapons system, Basic Fighter Maneuvering (BFM) and departures from controlled flight.

Requirement. Perform gun sight tracking, explore AIM-9 envelope and employment, slow speed/high AOA maneuvering and hard/break turns in the level/oblique and vertical. Review aircraft limitations and perform accelerated stall and spin recovery procedures.

Prerequisites. SEW-125, FRS Air-to-Air Phase ground school.

Ordnance. AIM-9, 300 rnds 25mm, 60 Chaff, 60 Flares

Performance Standards. Maneuvers performed as outlined in NATOPS and AV-8B TACMAN.

External Syllabus Support. NA

SBFM-151 1.5 T,E WST/NWST/RWST S

Goal. Introduce Air-to-Air Thrust Vector Controlling (TVC) drills.

Requirement. Introduce zero airspeed departure, TVC drills and maneuvers, and break turns without TVC.

Prerequisites. SBFM-150
Ordnance. AIM-9, 300 rnds 25mm, 60 Chaff, 60 Flares
Performance Standards. Maneuvers performed as outlined in NATOPS, TSC corporation TVC publication and AV-8B TACMAN.

External Syllabus Support. NA

SBFM-152 1.5 T,E WST/NWST/RWST S

Goal. Introduce Ground Controlled Intercepts (GCI) on single group presentations. Introduce basic intercept geometry and missile employment.

Requirement. Introduce GCI on single group presentations from all quadrants. Introduce AIM-9M and gun employment.

Prerequisites. SBFM-151, AIC Lecture, Read NA Intercept handout.

Ordnance. AIM-9, 300 rnds 25mm, 60 Chaff, 60 Flares
Performance Standards. Successful collision bearing intercepts to forward quarter weapons employment. Shot validation per TOPGUN ROT.

External Syllabus Support. NA

BFM-153 1.0 T,E 2 AV-8B A

Goal. Introduce TVC handling, handling drills and zero airspeed departures.

Requirement. Introduce zero airspeed departures, TVC drills and maneuvers, handling drills and weapons employment. V/STOL to include CL (1), VL (1). Review aircraft limitations and accelerated stall / spin recovery procedures.

Prerequisites. FORM-074, SBFM-151
Ordnance. 1 CATM-9, TACTS, 40 Flares
Performance Standards. Maneuvers performed as outlined in NATOPS, TSC corporation TVC publication and AV-8B TACMAN.

External Syllabus Support. TACTS range if available.

BFM-154 1.0 T,E 2 AV-8B A

Goal. Introduce offensive BFM.

Requirement. Introduce offensive BFM from various set-ups. Introduce missile and gun employment, energy management and ALE-39 use. V/STOL to include VL (1).

Prerequisites. BFM-153.
Ordnance. 1 CATM-9, TACTS, 40 Flares
Performance Standards. Successful management of control zone or disengagements. Shot validation per TOPGUN ROT.

External Syllabus Support. TACTS range if available.

BFM-155 1.0 T,E 2 AV-8B A

Goal. Introduce defensive BFM.

Requirement. Introduce defensive BFM from various set-ups. Practice missile and gun employment defense maneuvers, energy management and ALE-39 use. V/STOL to include VL (1).

Prerequisites. BFM-154.
Ordnance. 1 CATM-9, TACTS, 40 Flares
Performance Standards. Performs break turns as briefed. Successful denial of control zone or disengagement. Shot validation per TOPGUN ROT.

External Syllabus Support. TACTS range if available.

BFM-156 1.0 T,E 2 AV-8B A

Goal. Introduce High Aspect BFM.

Requirement. Introduce High Aspect (neutral start) BFM from various set-ups. Practice Offensive and Defensive perch maneuvering. Practice missile and gun employment, energy management, overshoot recognition/counters, game-plan formulation and ALE-39 use. V/STOL to include VL (1).

Prerequisites. BFM-155
Ordnance. 1 CATM-9, TACTS, 40 Flares
Performance Standards. Successful manages or denies the control zone. Energy management, successful disengagements and shots per TOPGUN ROT.

External Syllabus Support. TACTS range if available.

BFM-157 1.0 T,E 3 AV-8B A

Goal. Introduce 2-vs-1 maneuvering.

Requirement. Introduce 2-vs-1 maneuvering from forward Abeam and rear quarter set-ups. Practice missile and gun employment, energy management and ALE-39 use. V/STOL to include VL (1).

Prerequisites. BFM-156, FORM-075.
Ordnance. 1 CATM-9, TACTS, 60 Flares
Performance Standards. Maintains mutual support, defeats or denies shots, effective communication / role definition and shot validation per TOPGUN ROT.

External Syllabus Support. TACTS range if available.

14. Air-to-Air Refueling

a. Purpose. Train PUI in Air Refueling procedures.

b. General. This stage provides introduction to day, VMC aerial refueling procedures.

c. Ground / Academic Training. FRS Air Refueling phase brief.

d. Simulator / Flight Event Training (2 Events, 2.8 Hours)

SAAR-160	1.5	T,E	NWST/RWST	S

Goal. Introduce aerial refueling.
Requirement. Perform all NATOPS procedures to include tanker rendezvous, observation position, pre-contact position, drogue engagement/disconnect procedures and breakaway/departure procedures. Review the limits on the refueling probe.
Prerequisites. FRS Air Refueling phase brief.
Ordnance. NA
Performance Standards. As outlined in the Air Refueling NATOPS.
External Syllabus Support. NA

AAR-161	1.3	T,E	2 AV-8B	A

Goal. Introduce aerial refueling.
Requirement. Perform all NATOPS procedures to include tanker rendezvous, observation position, pre-contact position, drogue engagement/disconnect procedures and breakaway/departure procedures. Review the limits on the refueling probe. Total of two plugs, with a minimum of two initial approaches to basket is required. V/STOL to include VNSL (1), RVL (2) and VL (1).
Prerequisites. FORM-074 (FORM-075 if flown in division), SAAR-160.
Ordnance. NA
Performance Standards. As outlined in the Air Refueling NATOPS.
External Syllabus Support. Aerial Refueling Platform.

15. Night Systems

a. Purpose. Develop proficiency in Night Vision Device (NVD) use. Introduce formation using NVDs.

b. General. Prior to commencing this phase students must have 50 flight hours in model (single or dual seat). T&R Manual, Administrative illumination and flight requirements will be followed. All flights will be conducted with a designated FRS Night Systems Familiarization Instructor (NSFAMI). All solo flights will be flown with greater than 0.0022 LUX (high-light) conditions.

c. Ground/Academic Training. FRS Night Systems phase ground school and NVD Night Lab.

d. Simulator/Flight Event Training (5 Events, 6.9 Hours)

SNS-170 1.5 T,R,E NWST/RWST S NS

Goal. Introduce NVD use.

Requirement. Perform NVG orientation and instrument approaches. V/STOL to include FNSL (1), VNSL (1), VTO/Accel to VL (1). Instructor selected emergencies.

Prerequisites. FRS Night Systems phase ground school, NVD Night Lab.

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual and/or TACMAN standard without exhibiting any unsafe trends.

External Syllabus Support. NA

SNS-171 1.5 T,R,E NWST/RWST S NS

Goal. Introduce NS high-low-high navigation.

Requirement. Perform NS flight on a prebriefed high-low-high profile using a military training route (MTR). Maximize the use of night systems. IP should assign an identifiable target and TOT at a specific point along the route. Practice night systems navigation, timing, and target/detection/acquisition identification. Perform level 500 ft AGL target over fly.

Prerequisites. SNS-170

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual and/or TACMAN standard without exhibiting any unsafe trends. PUI shall be +/- 30 seconds of TOT and +/- 500 lbs on fuel planning.

External Syllabus Support. NA

NS-172 1.3 T,R,E 1 (T)AV-8B A NS

Goal. Introduce NVD usage.

Requirement. NVG orientation. V/STOL to include FNSL (1), VNSL (1), RVL or Decel/VL (1).

Prerequisites. FAM-033, SNS-170

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual and/or TACMAN standard without exhibiting any unsafe trends.

External Syllabus Support. NA

NS-173 1.3 T,R,E 2 AV-8B A NS

Goal. Introduce NVD formation.

Requirement. Perform section stream STO as a wingman. Introduce administrative formation utilizing NVD’s. Execute section TACAN approach as wingman. V/STOL to include FNSL (2) and VL (1).

Prerequisites. NS-172, FORM-076

Ordnance. NA

Performance Standards. PUI will strive to perform all

maneuvers to a NATOPS Flight Manual and/or TACMAN standard without exhibiting any unsafe trends.

External Syllabus Support. NA

NS-174 1.3 T,E 2 AV-8B A NS

Goal. Introduce NVD navigation.

Requirement. Perform NS flight on a prebriefed high-low-high profile using a military training route (MTR). IP should assign an identifiable target and TOT at a specific point along the route. Practice night systems navigation, timing, and target/detection/acquisition.

Prerequisites. NS-173

Ordnance. NA

Performance Standards. PUI will strive to perform all maneuvers to a NATOPS Flight Manual and/or TACMAN standard without exhibiting any unsafe trends. PUI shall be +/- 30 seconds of TOT and +/- 500 lbs on fuel planning.

External Syllabus Support. NA

16. Strike Exercise

a. Purpose. Consolidation flight designed expose the PUI to detailed planning required of a tactical Aerial Interdiction (AI) sortie in a medium threat environment.

b. General. Flight planning demonstrated by IP with active participation of PUI. TACTS range threat emitters will be used to simulate threat SAM and AAA systems. Airborne SEAD, SCAR or adversary aircraft should be scheduled to compliment scenario. If ACM engagements occur they will be conducted IAW T&R Manual, Administrative rules of conduct for Air Combat Maneuvering.

c. Ground/Academic Training. FRS Strike phase brief.

d. Simulator/Flight Event Training (1 Event, 1.3 Hours)

STRIKE-180 1.3 T,E 4 AV-8B A

Goal. Introduce tactical AI strike on a preplanned DMPI.

Requirement. Practice AI strike in a medium threat environment. Current weather will dictate profile to be flown for flight. PUI must actively participate in planning process. V/STOL to include RVL (1).

Prerequisites. OAS, BFM and EW phase complete.

Ordnance. 24 Mk-76, CATM, TACTS, 40 Chaff, 80 Flares

Performance Standards. Effect on target, no unsafe weapons releases, acceptable attack timing and deconfliction. Performs proper threat countertactics based on briefed threat reaction matrix.

External Syllabus Support. Bombing range, TACTS range, GCI, adversary aircraft and EW range.

17. RADAR Ground School

a. Purpose. Introduction to APG-65 RADAR equipped aircraft and systems.

b. General. Introduce APG-65 Air-to-Surface and Air-to-Air operating modes.

c. Ground/Academic Training. FRS RADAR Ground School.

d. Simulator/Flight Event Training (1 Event, 1.5 Hours)

SRADAR-185 1.5 T,E RWST S

Goal. Introduce APG-65 Air to Surface and Air to Air modes.

Requirement. Introduce APG-65 and selected emergencies that are unique to AV-8B II+.

Prerequisites. FRS Radar Ground School.

Ordnance. NA

Performance Standards. PUI shall be familiar with all aircraft system functionality and checklist procedures.

External Syllabus Support. NA

18. NATOPS/Combat Capable Evaluation

a. Purpose. Conduct Combat Capable evaluation as required by AV-8B NATOPS Flight Manual.

b. General. A designated NATOPS check pilot will observe and certify that the PUI is NATOPS qualified per NATOPS Manual, Chapter 10. Satisfactory completion of the NATOPS ground evaluation is a prerequisite for the NATOPS simulator evaluation.

c. Ground/Academic Training. Students shall complete NATOPS open/closed book tests prior to flight.

d. Simulator/Flight Event Training (1 Event, 1.5 Hours)

SNATOPS-190 1.5 T,R,M,E WST/NWST/RWST S

Goal. Evaluate pilot knowledge of aircraft systems and normal and emergency procedures.

Requirement. Execute local navigation route to a VFR recovery at home field. Perform all takeoffs and landings IAW NATOPS procedures. Instructor selected emergencies.

Prerequisites. STRIKE-180.

Ordnance. NA

Performance Standards. PUI shall perform all maneuvers and procedures IAW NATOPS Flight Manual.

External Syllabus Support. NA

132. COMBAT READY TRAINING

1. Initial Combat Ready Training

a. Purpose. To provide standardized training in the core skills. Completion of this stage of training yields a combat effective wingman that is proficient in both variants of the AV-8B.

b. General. Commands should challenge the new wingman's abilities and develop robust training plans that present realistic combat training environments.

2. Familiarization

a. Purpose. Maintain proficiency and familiarity with V/STOL flight characteristics, limitations, and normal operating procedures.

b. General. This stage provides an arrival inventory of V/STOL proficiency and allows the pilot to meet currency requirements of V/STOL flying. Squadrons shall use these events for the following:

(1) Squadron introduction/Area familiarization.

(2) Back-in-the-saddle.

(3) Introduction to the RADAR aircraft.

c. Ground/Academic Training. Prior to flight, the pilot must be current per AV-8B NATOPS Flight Manual. Academic requirements are delineated in the MAWTS-1 Course Catalog. The pilot should thoroughly review squadron SOPs, AirOps SOPs, and range regulations.

d. Simulator / Flight Event Training (2 Events, 3.0 Hours)

SFAM-200 1.5 T,R,E RWST S

Goal. Fleet arrival skills inventory, refresher and emergency procedures.

Requirement. Practice all start, taxi, takeoff and landing procedures to include departure to local working area per local course rules. Practice all A/S and A/A RADAR modes displays and controls.

Prerequisites. NA

Ordnance. NA

Performance Standards. Demonstrate familiarity with normal and emergency procedures. Demonstrate proficiency with A/S and A/A RADAR functions and HOTAS.

External Syllabus Support. NA

FAM-201 1.5 T,R 2 AV-8B A

Goal. Fleet arrival skills inventory and familiarization refresher. Introduce airborne management of the MPCD, FLIR, and APG-65 displays, if applicable. Practice conventional handling and VSTOL characteristics

Requirement. Practice standardized ground procedures, STO, and departure to assigned working area following local course rules. Conduct familiarization of local area as required. Review standardized ground procedures, enhanced alignment procedures and combat checklist as modified for night attack/radar night attack aircraft. Review all night attack/radar night attack displays, controls and procedures using push-button and HOTAS access to include: MPCDs, FLIR, Moving Map and APG-65. Introduce all A/S and Air Radar modes/displays, controls and procedures using push-button

and/or HOTAS.

Prerequisites. SFAM 200

Ordnance. NA

Performance Standards. Demonstrate proficiency with all normal operating procedures and proficiency with HOTAS, APG-65 and FLIR.

External Syllabus Support. NA

3. Instruments

a. Purpose. Maintain the ability to fly in IMC conditions in accordance with the OPNAV 3710 and NATOPS Flight Manual.

b. General. Pilots shall complete annual Instrument Evaluation as REQ-601.

c. Ground/Academic Training. All pilots shall complete annual instrument ground school requirements IAW OPNAV.

d. Simulator / Flight Event Training (1 Events, 1.0 Hours)

SINST-202 1.0 T RWST S

Goal. Instrument procedures practice.

Requirement. Practice instrument procedures. Introduce use of APG-65 for radar trail departures, weather avoidance and emergency radar approaches. Conduct PAR, ASR, TACAN, and AWLS.

Prerequisites. SFAM 200

Ordnance. NA

Performance Standards. PUI will perform all maneuvers to a NATOPS and OPNAV 3710 standard without exhibiting any unsafe trends and/or poor judgment.

External Syllabus Support. NA

4. Navigation

a. Purpose. Maintain proficiency in planning and executing low altitude navigation while optimizing the use of all available systems.

b. General. These events are designed to provide for arrival inventory of navigation proficiency and introduction / review of aircraft navigation systems. At the completion of this stage, the PUI should be able to:

(1) Demonstrate proficiency in planning, navigation system use and low task management.

(2) Arrive at final point of navigation route within 15 seconds of planned time and 300 pounds of planned fuel.

(3) Demonstrate knowledge of threat RADAR horizons impact on altitude selection and conduct planning appropriately.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (1 Events, 1.0 Hours)

SNAV-203 1.0 T RWST S

Goal. Practice low level navigation and A/S radar (RBGM & EXP) capabilities and associated limitations during a hi-lo-hi navigation profile. Apply radar predictions.

Requirement. Plan a navigation route to TACSOP Standards. Emphasize fuel planning, timing, system utilization, hi-lo-hi profile, and available update capabilities. Introduce low altitude cockpit management procedures to include aiding navigation by optimizing night attack and RADAR suites. Introduce the capabilities and limitations of the A/S radar program for navigation. Introduce radar expand updates, both on and off route. Introduce practical application of radar prediction, mission planning factors and display interpretation in the MAP and expand modes. Introduce Terrain Avoidance (TA) mode. Introduce Emergency Approach procedures using

Prerequisites. SFAM 200

Ordnance. NA

Performance Standards. Arrive at final point of navigation route within 15 seconds of planned time and +/-300 pounds of planned fuel.

External Syllabus Support. NA

5. Air-to-Air Refueling

a. Purpose. Demonstrate and maintain proficiency in AAR operations.

b. General. Initial qualifications for tanking operations shall be conducted in accordance with the Air Refueling NATOPS Manual. Squadrons may conduct AAR within ferry missions or as part of a tactical sortie, as long as previous T&R requirements are met.

c. Ground/Academic Training. Squadrons shall complete the AAR stage briefs before conducting any AAR flight, per the NATOPS Flight Manual, Air Refueling NATOPS Manual, and local SOP's.

d. Simulator / Flight Event Training (2 Events, 2.0 Hours)

AAR-204 1.0 T,R 2 AV-8B A

Goal. Review A-A Refueling.

Requirement. Perform all AR procedures to include: tanker rendezvous, observation position, pre-contact position, refueling procedures, and tanker departure

Prerequisites. FAM 201

Ordnance. NA

Performance Standards. As outlined in the Air Refueling NATOPS.

External Syllabus Support. Compatible tanker.

AAR-205 1.0 T,E 2 AV-8B A N

Goal. Night A-A Refueling.

Requirement. Perform all NATOPS refueling procedures at night to include: tanker rendezvous, observation position, pre-contact position, and departure procedures.

Complete at least six plugs for initial qualification. This sortie can be flown aided if prerequisites are met.

Prerequisites. AAR-204, NS-235 if flown aided.

Ordnance. NA

Performance Standards. As outlined in the Air Refueling NATOPS.

External Syllabus Support. Compatible tanker.

6. Electronic Warfare

a. Purpose. Develop proficiency in defensive Electromagnetic Countermeasures (ECM) and the employment of onboard ECM equipment.

b. General. This event is designed to provide for arrival inventory of EW suite proficiency. At the completion of this stage, the pilot should be able to:

(1) Demonstrate the proper set-up, bit and tactical operation of the ALR-67, ALQ-164, and ALE-39 against threat systems.

(2) Perform appropriate preemptive / reactive threat avoidance, reactions and formation reconsolidation.

(3) Communicate effectively while being engaged by threat systems.

c. Ground/Academic Training. The MAWTS-1 Academic Support Package (ASP) delineates certain tactical readings and lectures that are required for training to start.

d. Simulator / Flight Event Training (1 Events, 1.0 Hours)

SEW-206 1.0 T,R WST/NWST/RWST S

Goal. Review ECM suite and defensive countermeasures.

Requirement. Review operation of ECM suite. Review decision process based on briefed threat reaction matrix. Review proper maneuvers based on engaging threat system and reactive communication procedures. At a minimum, perform 2 runs at low altitude and 2 runs medium altitude.

Prerequisites. SFAM-200 and MAWTS-1 ASP lectures.

Ordnance. 6 MK-82

Performance Standards. Successfully ingress and egress a target defended by autonomous threat system.

External Syllabus Support. NA

7. Air-to-Surface

a. Purpose. Refine Basic Conventional Weapons Delivery (BCWD)skills. .

b. General. At the end of this stage the PUI should be able to:

(1) Demonstrate low and high angle dive deliveries on a scored range.

(2) Demonstrate a thorough knowledge of weapon system delivery theory and application including: target designation, computed weapons

delivery methods, tracking techniques, and backup delivery methods.

(3) Demonstrate a working knowledge of delivery parameters, multiple weapons release planning, fragmentation envelopes, and fuzing considerations for conventional weapons.

(4) Demonstrate a thorough knowledge of level entry, ramp down, cruise climb, and medium altitude pop-up attack computations.

(5) Demonstrate a thorough knowledge of and proficiency in section target area mechanics, and stand off weapons delivery profiles.

(6) Ordnance requirements may include any authorized TACMAN AS store

Each flight in this phase requires video analysis.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (6 Events, 6.0 Hours)

SAS-210 1.0 T RWST S

Goal. Review high and low angle systems deliveries and toss/loft delivery profiles.

Requirement. Conduct high and low angle systems deliveries on a scored range. Introduce / review APG-65 air to surface modes or review Dual Mode Tracker (DMT)/LST weapons delivery procedures.

Prerequisites. SFAM 200 and MAWTS-1 ASP lectures.

Ordnance. 6-MK82 H/L SEL

Performance Standards. CEP @ MPI < 12 mR.

External Syllabus Support. NA

SAS-211 1.0 T NWST/RWST S

Goal. Specific Weapons Deliveries

Requirement. Perform gun strafe and 5” rocket deliveries on a scored range. Review HOTAS, weapons programming and delivery skills. Sortie should review gun and rocket malfunctions.

Prerequisites. SAS 210

Ordnance. CAGM-65/LGB/LGTR/JDAM/Gun/5” Rockets as required and self-protect expendables.

Performance Standards. Demonstrate successful LMAV, IRMV, LGB, JDAM employment as applicable. Perform Gun not clear/Hung Rocket or hung ordnance emergency procedures.

External Syllabus Support. NA

SAS-212 1.0 T NWST/RWST S

Goal. Standoff Profiles

Requirement. Conduct standoff profiles to include ramp downs and medium to high altitude level deliveries utilizing standoff weapons to include IRMV, LMAV, LGB, and/or JDAM as appropriate. Review launch envelopes,

environmental factors, target planning and designator limitations. Review JCOMM brevity.

Prerequisites. SAS 211

Ordnance. AGM-65 E&F/LGB/JDAM and self-protect expendables.

Performance Standards. Demonstrate familiarity and proficiency with weaponeering, mission planning, and profiles required for employment of LGB, IRMV, LMAV, or JDAM.

External Syllabus Support. NA

AS-213 1.0 T 2 AV-8B A

Goal. Review high and low angle raked range pattern.

Requirement. Conduct high and low angle systems deliveries on a scored range. Introduce / review APG-65 air to surface modes or review Dual Mode Tracker (DMT)/LST weapons delivery procedures.

Prerequisites. SAS 210, FAM-201

Ordnance. 12 MK-76, gun and self-protect expendables.

Performance Standards. Evaluate performance using VTR and WRD. Min CEP of <=12 mil about the MPI.

External Syllabus Support. Scored, laser capable range.

AS-214 1.0 T,R 2 AV-8B A

Goal. Review day target area mechanics.

Requirement. Conduct medium /low altitude target mechanics to dive delivery profiles, using a scored range (when available).

Prerequisites. AS-213; ensure LAT prerequisites are met if flown below 500’.

Ordnance. 12 MK-76, gun and self-protect expendables

Performance Standards. Target area tactics per Harrier Force TACSOP and CEP @ MPI <12 mR if scored range is used.

External Syllabus Support. Ordnance range and/or TACTS range.

AS-215 1.0 T,R,E 2 AV-8B A

Goal. Review day target area mechanics using medium and high altitude standoff delivery profiles

Requirement. Conduct multiple AGM-65 E&F, LGB, or JDAM deliveries using preplanned standoff target area tactics.

Prerequisites. SAS-212, AS-214

Ordnance. CAGM-65 E&F and/or other PGM.

Performance Standards. Successful deliveries of stand-off weapons with VTR verification.

External Syllabus Support. Laser capable ordnance range.

8. Low Altitude Tactics

a. Purpose. Refine basic and advanced LAT skills as a single aircraft and introduce section LAT maneuvering. Introduce LAT maneuvering in a aircraft loaded for air-to-surface attack and section low altitude target mechanics. Introduce low altitude threat reactions beginning from both low and medium altitude starts

b. General. All pilots shall fly in accordance with T&R Manual, Administrative directed LAT rules of conduct. BAM / BASH data and route obstructions shall be incorporated into the brief. All sorties will utilize a VTR for debriefing to the maximum extent possible. Forced performance (altitude, airspeed, aerodynamic, vector and time control) is required during each simulator sortie so instructors may evaluate terrain clearance tasks and mission cross checks. Obstruction clearance in any simulator or flight of less than 100 feet AGL requires, at a minimum, a refly of that particular sortie. Upon completion of this stage, the PUI should be able to demonstrate the following:

(1) Proficiency in all basic LAT maneuvers as defined in the MAWTS-1 ASP.

(2) Proficiency in efficient scan techniques that enable aerodynamic control, vector control, AGL control, and time control.

(3) Proficiency in cockpit management skills to include Terrain Clearance Tasking (TCT) and Mission Tasking (MT).

(4) Proficiency in low altitude section maneuvering.

(5) Proficiency in all advanced LAT maneuvers.

(6) Proficiency in medium and low altitude reactive threat countertactics.

(7) Proficiency in low altitude target area mechanics.

Successful completion of stage constitutes LAT qualification, which shall be recorded as QUAL-610.

c. Ground Training

(1) Academic requirements are delineated in the MAWTS-1 Course Catalog.

(2) Successfully complete the LAT written examination prior to flight phase.

d. Simulator / Flight Event Training (8 Events, 8.0 Hours)

SLAT-220	1.0	T,E	WST/NWST/RWST	S

Goal. Review basic low altitude maneuvers, advanced LAT maneuvers and ROC.

Requirement. Perform low altitude basic flight maneuvers while flying on a closed circuit LAT course. PUI practice straight and level flight, level turns, ridgeline crossings, terrain masking, and climb-to-cope procedures. Practice efficient scan techniques that enable aerodynamic control, vector control, AGL control, and time control. Emphasize TCT/MCT. Review all advanced LAT maneuvers, to include transition to LAT, vertical jinks, SOJ, TOJ, ROJ, 3D maneuver. Emphasize adherence to the 10 degree rule, 50% dive recovery rule and step down recovery altitudes. Flight should be flown in mountainous terrain database.

Prerequisites. SFAM-200, MAWTS-1 ASP lectures 1-4 and LAT examination.

Ordnance. NA

Performance Standards. Demonstrate understanding of LAT mechanics and safety parameters. Minimum altitudes per T&R Manual, Administrative.

External Syllabus Support. NA

SLAT-221 1.0 T,R WST/NWST/RWST S

Goal. Review low altitude threat reactions.

Requirement. Practice SCAT, guns jinks, level S, break turns, and MAC. Review RF and IR SAM/AAA counter tactics on a reactive LAT circuit. Emphasize threat recognition, identification and assessment, decision points based on threat matrix, communication brevity, and appropriate/timely reactions vs. threat engagement timelines. Threat database should include various types of SAM/AAA threats.

Prerequisites. SLAT-220, SEW-206

Ordnance. ALQ-164, self-protect expendables, 6 MK-82 HD.

Performance Standards. Demonstrate proficiency and familiarity with RWR interpretation, reactive RF and IR SAM and AAA tactics. Successfully ingress and egress a target defended by autonomous threat systems.

External Syllabus Support. NA

SLAT-222 1.0 T WST/NWST/RWST S

Goal. Medium altitude threat reactions with transitions to the low altitude environment.

Requirement. Introduce and practice RF and IR SAM and AAA countertactics in a medium altitude environment to include SAM weave, modified GLIB II, level S, notch geometry, and transitions to the low altitude environment

Prerequisites. SLAT-221

Ordnance. ALQ-164, self-protect expendables, 6 MK-82 LD / HD.

Performance Standards. Demonstrate proficiency and familiarity with RWR interpretation, reactive RF and IR SAM and AAA tactics in the medium and low altitude environment. Successfully ingress and egress a target defended by autonomous threat systems.

External Syllabus Support. NA

LAT-223 1.0 T,R 2 AV-8B A

Goal. Practice basic and advanced LAT maneuvers.

Requirement. As a single chased aircraft on closed LAT course, practice straight and level flight, level turns, ridgeline crossings and terrain masking as terrain permits. Emphasize efficient scan techniques to enable aerodynamic control, vector control, AGL control and time control in support of TCT/MCT. As a wingman, practice all tactical turns in combat spread formation. Emphasize turn geometry and formation position.

Prerequisites. SLAT-220, FAM-201
Ordnance. NA
Performance Standards. Demonstrate safe adherence to LAT ROC and minimum altitudes per T&R Manual, Administrative.
External Syllabus Support. LAT range

LAT-224 1.0 T,R 2 AV-8B A

Goal. Low altitude target area mechanics.

Requirement. Perform low altitude target area tactics IAW Harrier Force TACSOP. Emphasize sensor management, deconfliction, mutual support and communication procedures.

Prerequisites. LAT-223, AS-214.

Ordnance. Simulated high drag, free-fall ordnance.

Performance Standards. Demonstrate proficiency in low altitude target area tactics IAW the Harrier Force TACSOP.

External Syllabus Support. LAT/ordnance range.

LAT-225 1.0 T 2 AV-8B A

Goal. Introduce/Practice heavyweight LAT.

Requirement. Perform basic and advanced LAT and threat reaction with heavyweight ordnance. Practice low altitude target attacks IWA Harrier Force TACSOP. Emphasize heavyweight aircraft handling characteristics.

Prerequisites. LAT-224.

Ordnance. 6 BDU-45/MK-82 HD or 2 full external fuel tanks.

Performance Standards. Demonstrate safe adherence to LAT ROC and minimum altitudes per T&R Manual, Administrative.

External Syllabus Support. LAT/impact area

LAT-226 1.0 T 2 AV-8B A

Goal. Introduce/practice low altitude threat reaction.

Requirement. Practice advanced LAT maneuvers. Introduce SAM/AAA counter tactics on a reactive LAT circuit. Practice low altitude target attacks per the Harrier Force TACSOP. Emphasize threat recognition, identification and assessment, decision points based on a threat matrix, communication brevity, and appropriate/timely reactions versus threat engagement timeline.

Prerequisites. LAT-225, SLAT-221

Ordnance. Simulated free-fall bombs and self-protect expendables.

Performance Standards. Demonstrate appropriate threat countertactics maneuvers. Minimum altitude per T&R Manual, Administrative.

External Syllabus Support. LAT/EW Range

LAT-227 1.0 T,R,E 2 AV-8B A

Goal. Review medium/low altitude threat countertactics.

Requirement. Review SAM/AAA medium altitude counter tactics on a reactive circuit to include transitions to the low altitude environment. Emphasize threat recognition, identification and assessment, decision points based on threat matrix, communication brevity, and appropriate/timely reactions versus threat engagement timeline.

Prerequisites. LAT-226, SLAT-222

Ordnance. Simulated free-fall bombs and self-protect expendables.

Performance Standards. Demonstrate appropriate threat countertactics maneuvers. Minimum altitude per T&R Manual, Administrative.

External Syllabus Support. LAT/EW Range

9. Night Systems (NS)

a. Purpose. Develop proficiency in the use of Night Vision Devices (NVD's) and aircraft Night Attack suite.

b. General. Pilots shall complete this training per T&R Manual, Administrative Rules of Conduct. Pilots who are not NSQ(H) qualified shall fly all the events in this stage with an NSI. The first two sorties of this stage (NS-232 and NS-233) shall be flown in HLL. At least one of the remaining two sorties (NS-234 and NS-235) shall be flown in LLL. At the completion of this stage, the pilot should be able to demonstrate proficiency under various light levels in the following skill areas:

(1) NS navigation.

(2) NS formation flying as a wingman.

(3) NS weapons delivery.

(4) NS tactical attack profiles.

Completion of this stage constitutes NS Qualification (High) (NSQ(H)) and shall be recorded as QUAL-614.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (6 Events, 6.8 Hours)

SNS-230 1.0 T,R NWST/RWST S NS

Goal. Introduce NS high and low angle dive deliveries.

Requirement. Perform high and low angle system deliveries on a raked range or tactical targets under various light levels. Stress sensor management (map, FLIR, NVD’s) to optimize target detection, acquisition and identification. Stress BCWD skills as they apply to aided night delivery profiles.

Prerequisites. SAS-210, Night Lab and MAWTS-1 ASP lectures.

Ordnance. 12-MK76 and self-protect expendables.

Performance Standards. CEP must be < 12 mils about MPI.

External Syllabus Support. NA

SNS-231 1.0 T,R NWST/RWST S NS

Goal. Introduce NS tactical attack profiles.

Requirement. Perform medium and low altitude transition profiles to medium altitude releases. Emphasize optimizing sensor/systems for target detection, acquisition and identification. Introduce/review aided target area tactics/mechanics, mutual support and deconfliction. NSI required for all non NSQ aircrew.

Prerequisites. SNS-230

Ordnance. 4 MK-82, self-protect expendables and ALQ-164.

Performance Standards. Perform minimum of 2 low altitude transitions and 2 medium altitude transitions to weapons release.

External Syllabus Support. NA

NS-232 1.5 T,R 2 AV-8B A NS

Goal. Review NVD familiarization and formation procedures.

Requirement. Review aided ground procedures and aircraft system setup. Evaluate environmental conditions and NVD limitations at various altitudes. Review formation procedures and lighting packages as outlined in Harrier Force TACSOP. A CV and running rendezvous shall be performed on initial sortie. Practice NS V/STOL if airfield environment allows. NSI required for all non NSQ aircrew.

Prerequisites. SNS-230, FAM-201

Ordnance. NA

Performance Standards. Demonstrate proficiency in formation procedures and NVD use.

External Syllabus Support. NA

NS-233 1.3 T 2 AV-8B A NS

Goal. NS high-low-high navigation

Requirement. As a chased aircraft, conduct NS navigation on a prebriefed high-low-high profile using a military training route. IP should assign a TOT at a target along the route. Review NVD techniques for terrain avoidance and target detection. Emphasize navigation, timing, target detection, acquisition and identification, level over flight of target and fuel planning. Practice NS V/STOL as airfield environment allows. NSI required for all non NSQ aircrew.

Prerequisites. NS-232

Ordnance. NA

Performance Standards. Arrive at final point of navigation route within 15 seconds of planned time and

+/-300 pounds of planned fuel.

External Syllabus Support. MTR

NS-234 1.0 T 2 AV-8B A NS

Goal. NS high and low angle system dive deliveries.

Requirement. Perform high and low angle system deliveries on a raked range or tactical targets. Stress sensor management (map, FLIR, NVD's) to optimize target detection, acquisition and identification. Stress BCWD skills as they apply to aided night delivery profiles. NSI required for all non NSQ aircrew.

Prerequisites. NS-233, AS-213

Ordnance. 6 MK-76 and self-protect expendables.

Performance Standards. CEP must be < 12 mils about MPI.

External Syllabus Support. scored range laser capable

NS-235 1.0 T,R,E 2 AV-8B A NS

Goal. NS tactical attack profiles.

Requirement. Perform medium and low altitude transition profiles to medium altitude releases. Emphasize optimizing sensor/systems for target detection, acquisition and identification. Introduce/review aided target area tactics/mechanics, mutual support and deconfliction. NSI required for all non NSQ aircrew.

Prerequisites. NS-234

Ordnance. Free-fall ordnance and self-protect expendables.

Performance Standards. Minimum 2 low altitude transition profiles and 2 medium altitude transition profiles.

External Syllabus Support. Ordnance range.

10. Air Interdiction

a. Purpose. Develop proficiency in the tactical employment of the AV-8B in the air interdiction role in the low and medium altitude regimes. Specific sorties require either medium or low altitude tactics based on prescribed threat levels or weather conditions

b. General. At the completion of this stage the PUI should be able to:

(1) Demonstrate proficiency in the execution of section air interdiction missions, day and night, at both low and medium altitude.

(2) Deliver conventional ordnance on tactical targets both day and night demonstrating the proper use of sensors/systems.

(3) The pilot should be familiar with Marine Air Command and Control (MACCS) structure and integration procedures for an air interdiction mission.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (4 Events, 4.6 Hours)

SAI-240 1.0 T WST/NWST/RWST S

Goal. Conduct medium altitude AI.

Requirement. Conduct a medium altitude interdiction mission. Introduce/review JMEMS weaponeering and attack profile planning based on specific target data. Sortie should be structured to provide medium altitude sanctuary. Review sensor timelines, weapons delivery skills, threat countertactics, and tactical communication.

Prerequisites. SAS-212 and MAWTS-1 ASP lectures.

Ordnance. 6 MK-83, self-protect expendables and ALQ-164.

Performance Standards. Effect on assigned target and proper threat countertactics.

AI-241 1.3 T 2 AV-8B A

Goal. Conduct medium altitude AI.

Requirement. Introduce/review JMEMS weaponeering and attack profile planning based on specific target data and desired weapons effect. Sortie should be structured to provide medium altitude sanctuary. Review sensor timelines, weapons delivery skills, threat countertactics, and tactical communication.

Prerequisites. SAI-240, AS-215.

Ordnance. Free-fall ordnance and self-protect expendables.

Performance Standards. Effect on assigned target and proper threat countertactics.

External Syllabus Support. Ordnance range

AI-242 1.0 T,R,E 2 AV-8B A

Goal. Conduct low altitude AI.

Requirement. Conduct an air interdiction mission with a low altitude ingress/egress. Emphasize planned low altitude target attack profiles against a specific target with lateral sanctuary. Review sensor timelines, weapons delivery skills, threat countertactics, and tactical communication.

Prerequisites. AI-241, LAT-227

Ordnance. Free-fall ordnance and self-protect expendables.

Performance Standards. Effect on assigned target and proper threat countertactics.

External Syllabus Support. Ordnance range.

AI-243 1.3 T,E 2 AV-8B A NS

Goal. Conduct a night medium altitude AI.

Requirement. Practice JMEMS weaponeering and attack profile planning based on specific target data and desired weapons effect. Emphasis should be placed optimizing sensors to allow for target detection / destruction while denying threat acquisition. Sortie should be structured to provide medium altitude sanctuary. Review sensor timelines, weapons delivery skills, threat countertactics, and tactical communication. Sortie can be flown aided if applicable prerequisites are met.

Prerequisites. AI-241, NS-235 if flown aided.

Ordnance. Free-fall ordnance and self-protect expendables.

Performance Standards. Effect on assigned target and proper threat countertactics.

External Syllabus Support. Ordnance range.

11. Armed Reconnaissance

a. Purpose. Develop proficiency in the tactical employment of the AV-8B in medium altitude Armed Reconnaissance missions.

b. General

(1) The pilot should be familiar with the use of the following external agencies and how to integrate them in the air interdiction stage:

(a) MACCS integration.

(b) Supporting arms.

(c) SCAR platforms.

(2) At the completion of this stage the PUI should be able to:

(a) Demonstrate proficiency as a wingman during armed reconnaissance day or night at medium altitude.

(b) Demonstrate proper delivery of ordnance utilizing direct, transition or TACSOP described “in-flight” attacks.

(c) Use the TACSOP developed reactive weaponeering for various target arrays.

(d) Demonstrate the use of effective tactical communication and reporting procedures.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (3 Events, 3.0 Hours)

SAR-245 1.0 T WST/NWST/RWST S

Goal. Conduct medium altitude Armed Reconnaissance

Requirement. Conduct AR from a medium altitude sanctuary. Sortie should focus on search techniques, targeting based on assigned target precedence and in-flight attack profiles. Search profiles will be based on predicted acquisition ranges of expected target sets. Reactive weaponeering matrices will be used to maximize weapons effects. Review sensor timelines, weapons delivery skills, threat countertactics, and tactical communications.

Prerequisites. SAS-212 and MAWTS-1 ASP lectures.

Ordnance. CBU-99/100, gun and self-protect expendables.

Performance Standards. Proper search of assigned ARA, attacks conducted properly based on assigned precedence and effect on target.

External Syllabus Support. NA

AR-246 1.0 T,R 2 AV-8B A

Goal. Conduct medium altitude Armed Reconnaissance

Requirement. Conduct AR from a medium altitude sanctuary. Sortie should focus on search techniques, targeting based on assigned target precedence and in-flight attack profiles. Search profiles will be based on predicted acquisition ranges of expected target sets. Reactive weaponeering matrices will be used to maximize weapons effects. Review sensor timelines, weapons delivery skills, threat countertactics, and tactical communications.

Prerequisites. SAR-245, AS-214

Ordnance. Free-fall ordnance and self-protect expendables.

Performance Standards. Proper search of assigned ARA, attacks conducted properly based on assigned precedence and effect on target.

External Syllabus Support. Ordnance range

AR-247 1.0 T,E 2 AV-8B A NS

Goal. Conduct night medium altitude Armed Reconnaissance

Requirement. Sortie should focus on night search techniques, targeting based on assigned target precedence and in-flight attack profiles. Search profiles will be based on predicted acquisition ranges of expected target sets. Reactive weaponeering matrices will be used to maximize weapons effects. Review night sensor timelines, weapons delivery skills, threat countertactics, and tactical communications. Special emphasis should be placed on maximizing night sensors for target detection while denying threat acquisition. LUU-2 flares are optional. This sortie can be flown aided if prerequisites are met.

Prerequisites. AR-246, NS-235

Ordnance. Illumination, free-fall ordnance and self-protect expendables.

Performance Standards. Proper search of assigned ARA, attacks conducted properly based on assigned precedence and effect on target.

External Syllabus Support. Ordnance range.

12. Close Air Support

a. Purpose. Develop proficiency in the tactical employment of the AV-8B in the close air support role in the low and medium altitude regimes.

b. General. At the completion of this stage the PUI should be able to:

(1) Demonstrate proficiency in the execution of section close air support missions, day and night, at both low and medium altitude.

(2) Deliver conventional ordnance on tactical targets both day and night demonstrating the proper use of sensors/systems.

(3) Use the TACSOP developed reactive weaponeering for various target arrays.

(4) The pilot should be familiar with the use of the following external agencies and how to integrate them in the air interdiction stage:

(a) MACCS integration.

(b) Supporting arms.

(c) Forward Air Controllers (FAC) / FAC Airborne (A).

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (6 Events, 6.0 Hours)

SCAS-250 1.0 T,R WST/NWST/RWST S

Goal. Review medium altitude CAS.

Requirement. Conduct a medium altitude CAS mission under the control of a simulated FAC. Emphasize on systems management, target acquisition, target area mechanics, reactive weaponeering, threat countertactics and tactical communication.

Prerequisites. SAS-212, AS-215 and MAWTS-1 ASP lectures.

Ordnance. 8-MK82 H/L, gun and self-protect expendables.

Performance Standards. Effect on target, no unsafe weapons releases, proper corrections from the mark and acceptable attack timing.

External Syllabus Support. NA

SCAS-251 1.0 T NWST/RWST S

Goal. Introduce digital CAS.

Requirement. Conduct a medium altitude CAS mission under the control of a simulated FAC. Emphasize ARC-210, CAS page, and ATHS. Review systems management, target acquisition, target area mechanics, reactive weaponeering and tactical communication.

Prerequisites. SAS-250 and ARC-210 / ATHS lecture.

Ordnance. 2 GBU-12, gun, 1 AGM-65E or 1 AGM-65F, and self-protect expendables.

Performance Standards. Effect on target, no unsafe weapons releases, proper corrections from the mark and acceptable attack timing. Demonstrate proficiency with ARC-210 and ATHS system.

External Syllabus Support. NA

SCAS-252 1.0 T NWST/RWST S NS

Goal. Introduce NS medium altitude CAS.

Requirement. Conduct preplanned and immediate CAS missions under the control of a FAC. Emphasize systems management, night target area mechanics, reactive weaponeering, delivery

parameters, off target maneuvering, tactical communication, mutual support and covert expendable usage. Special emphasis should be placed on maximizing night sensors for target detection while denying threat acquisition. LUU-2 flares are optional. This sortie can be flown aided if prerequisites are met.

Prerequisites. SCAS-250, SNS-231
Ordnance. 4 MK-82, 2 AGM-65F, self-protect expendables and ALQ-164
Performance Standards. Effect on target, no unsafe weapons releases, proper corrections from the mark and acceptable attack timing and deconfliction.

External Syllabus Support. NA

CAS-253 1.0 T,R 2 AV-8B A

Goal. Conduct medium altitude CAS.

Requirement. Conduct a medium altitude CAS mission under

the control of a simulated FAC. Emphasize on systems management, target acquisition, target area mechanics, reactive weaponeering, threat countertactics and tactical communication.

Prerequisites. SCAS-250

Ordnance. 6 MK76 and self-protect expendables.

Performance Standards. Effect on target, no unsafe weapons releases, proper corrections from the mark and acceptable attack timing and deconfliction.

External Syllabus Support. Terminal control.

CAS-254 1.0 T 2 AV-8B A

Goal. Low altitude CAS.
Requirement. Conduct CAS with a low altitude ingress/egress. Emphasize on systems management, target acquisition, target area mechanics with a lateral sanctuary, reactive weaponeering, threat countertactics and tactical communication.

Prerequisites. CAS-253, LAT-227
Ordnance. Free-fall ordnance and self-protect expendables.
Performance Standards. Effect on target, no unsafe weapons releases, proper corrections from the mark and acceptable attack timing and deconfliction.

External Syllabus Support. Terminal control and ordnance range.

CAS-255 1.0 T,R,E 2 AV-8B A NS

Goal. Night medium altitude CAS

Requirement. Conduct preplanned and immediate CAS missions under the control of a FAC. Emphasize systems management, night target area mechanics, reactive weaponeering, delivery parameters, off target maneuvering, tactical communication, mutual support and covert expendable usage. Special emphasis should be placed on maximizing night sensors for target detection while denying threat acquisition. LUU-2 flares are optional. This sortie can be flown aided if prerequisites are met.

Prerequisites. CAS-253, NS-235 if flown aided.

Ordnance. Free-fall ordnance and self-protect expendables.
Performance Standards. Effect on target, no unsafe weapons releases, proper corrections from the mark and acceptable attack timing and deconfliction.

External Syllabus Support. Terminal control.

11. Assault Support Escort

a. Purpose. Develop proficiency in the techniques of escorting assault support aircraft

b. General. The pilot must have a thorough knowledge of assault support routing. Be ready to provide protection from aggressor fixed and rotary-wing aircraft, provide protection from ground threats, be prepared to clear landing zones, and provide assistance for TRAP and ResCAP. Upon completion of this stage, the pilot should be able to:

(1) Demonstrate proficiency as a wingman in an assault support escort mission.

(2) Understand attached, detached and combined escort techniques.

(3) Understand assault support routing.

(4) Provide reactive support against the threats.

(5) Understand execution checklist.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (1 Events, 1.3 Hours)

ASE-260 1.3 T,R,E 2 AV-8B A

Goal. Introduce assault support escort.
Requirement. Conduct an Escort mission for assault package. Emphasize planning and integrating with the assault support package

Prerequisites. CAS-253, AR-246
Ordnance. Free-fall ordnance and self-protect expendables.
Performance Standards. Demonstrate the ability to perform attached and detached escort of assault support

External Syllabus Support. Assault support aircraft.

12. Basic Fighter Maneuvers

a. Purpose. Develop and maintain proficiency in Basic Fighter Maneuvers (BFM), weapons employment and engaged section tactics

b. General. Pilots shall complete this training in accordance with T&R Manual, Administrative, rules of conduct and NATOPS Flight Manual.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (5 Events, 5.0 Hours)

SBFM-270 1.0 T WST/NWST/RWST S

Goal. Review TVC procedures and weapons employment procedures.

Requirement. Review weapons set-up, HOTAS and employment procedures. Introduce/review APG-65 ACM modes in flown in RNWST. Review zero airspeed departures and accelerated stalls. Review TVC maneuvers and handling characteristics. Review break turns at various altitudes with a deck transition.

Prerequisites. SFAM-200 and SEW-206.

Ordnance. 2 AIM-9M and self-protect expendables.

Performance Standards. Proper execution of procedures and weapons employed within TOPGUN ROT.

External Syllabus Support. NA

BFM-271 1.0 T 2 AV-8B A

Goal. Review TVC maneuvers and offensive perch BFM.

Requirement. Review zero airspeed departures and recovery. Review TVC maneuvers and handling characteristics. Review horizontal guns weave. Review offensive perch BFM from 3k / 6k / 9k offensive setups. Emphasize control zone and energy management, HOTAS, valid weapons employment, disengagements and ALE-39 use. Review horizontal scissors.

Prerequisites. SBFM-270, FAM-201 and MAWTS-1 ASP lectures.

Ordnance. CATM-9, TACTS, and self-protect expendables.

Performance Standards. Performs TVC maneuvers as briefed. Successful management of control zone or successful disengagement. Shot validation per TOPGUN ROT.

External Syllabus Support. TACTS range

BFM-272 1.0 T 2 AV-8B A

Goal. Review defensive perch BFM.

Requirement. Perform defensive maneuvering against a similar or dissimilar adversary. Emphasize valid weapons employment, rear quarter/forward quarter missile and gun defense, in-plane/out of plane maneuvering, and disengagements

Prerequisites. BFM-271

Ordnance. CATM-9, TACTS, and self-protect expendables.

Performance Standards. Performs break turns maneuvers as briefed. Successful denial of control zone or successful disengagement. Shot validation per TOPGUN ROT.

External Syllabus Support. TACTS range

BFM-273 1.0 T,R 2 AV-8B A

Goal. Review 1 v 1 High Aspect BFM

Requirement. Perform High Aspect (neutral) engagements against a similar or dissimilar adversary. Emphasize valid weapons employment, in-plane/out of plane maneuvering, and

disengagements

Prerequisites. BFM-272

Ordnance. CATM-9, TACTS, and self-protect expendables.

Performance Standards. Successful control or denial of control zone. Energy management, successful disengagements and shot validation per TOPGUN ROT.

External Syllabus Support. TACTS range

BFM-274 1.0 T,E 2 AV-8B A

Goal. Review 2v1 Visual Sets

Requirement. Perform forward quarter, lead-trail, and rear quarter set-ups. Emphasize tactical communications, mutual support, minimizing time-to-kill, and effective disengagements.

Prerequisites. BFM-273

Ordnance. CATM-9, TACTS, and self-protect expendables.

Performance Standards. Maintains mutual support, effective communication / role definition and shot validation per TOPGUN ROT.

External Syllabus Support. TACTS range, adversary

13. Air Combat Maneuvering

a. Purpose. Develop and maintain proficiency in the tactical employment of the AV-8B against an air threat. In addition, develop proficiency as a section ACM tactics.

b. General. Pilots shall complete this training in accordance with T&R Manual, Administrative, rules of conduct and NATOPS Flight Manual. All ACM events should use dissimilar bandits when available. Completion of this stage constitutes a ACM qualification, which shall be recorded as QUAL-613.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (12 Events, 12.0 Hours)

SACM-275 1.0 T WST/NWST/RWST S

Goal. Introduction to GCI tactics and review of AIM-9 tactics.

Requirement. Perform GCI intercepts from all quadrants on non-maneuvering bogey and execute successful AIM-9 launch to destroy target.

Prerequisites. SBFM-270

Ordnance. 4 AIM-9M, self-protect expendables and ALQ-164

Performance Standards. Successful collision bearing intercepts to weapon employment zones. Shot validation per TOPGUN ROT.

External Syllabus Support. NA

SACM-276 1.0 T MTT/RWST S

Goal. Forward quarter intercepts.

Requirement. Introduce pilot management of RADAR search volume. Evaluate target Mach, altitude, closure, and aspect. Use antenna train angle, and target aspect to

stern conversion intercept. Adversary should be a non-maneuvering, single group presentation.

Prerequisites. SACM-275

Ordnance. 4 AIM-9M, self-protect expendables and ALQ-164

Performance Standards. Successful collision bearing intercepts to weapon employment zones. Shot validation per TOPGUN ROT.

External Syllabus Support. NA

SACM-277 1.0 T RWST S

Goal. Introduction to GCI controlled forward quarter RADAR intercepts.

Requirement. Introduce CAP procedures and the use of GCI to complement RADAR search and targeting. Introduce RADAR mechanics to establish a collision bearing intercept against a single group, non-maneuvering adversary. Introduce fast and high flying adversaries.

Prerequisites. SACM-276

Ordnance. 4 AIM-9M, self-protect expendables and ALQ-164

Performance Standards. Successful forward quarter weapons employment and shot validation per TOPGUN ROT.

External Syllabus Support. NA

SACM-278 1.0 T MTT/RWST S

Goal. Intro Maneuvering Adversaries

Requirement. Introduce tactical intercepts against a maneuvering adversary. Emphasize aspect assessment and refinement of lateral separation. Refine integration with AIC and executing the radar engagement timeline. Adversary should be maneuvering with at least a 60 kt speed advantage.

Prerequisites. SACM-277

Ordnance. 4 AIM-9M, self-protect expendables and ALQ-164

Performance Standards. Successful forward quarter weapons employment, correct targeting and shot validation per TOPGUN ROT.

External Syllabus Support. NA

SACM-279 1.0 T MTT/RWST S

Goal. Practice short range intercepts.

Requirement. Practice conducting short range intercepts against maneuvering adversaries. Utilize broadcast control from GCI to determine threat aircraft’s position. Practice short range RADAR/weapons employment, targeting and defensive counters.

Prerequisites. SACM-278

Ordnance. 4 AIM-9M, self-protect expendables and ALQ-164

Performance Standards. Successful weapons employment or defensive counters and shot validation per TOPGUN ROT.

External Syllabus Support. NA

SACM-280 1.0 T MTT/RWST S

Goal. Formation analysis.

Requirement. Incorporate formation analysis and sorting into a tactical intercept. Adversaries should be in section and presented in a variety of tactical formations. Adversaries should be non-maneuvering.

Prerequisites. SACM-279

Ordnance. 4 AIM-9M, self-protect expendables and ALQ-164

Performance Standards. Successful formation analysis and targeting. Shot validation per TOPGUN ROT.

External Syllabus Support. NA

SACM-281 1.0 T MTT/RWST S

Goal. Two group presentations.

Requirement. Introduce intercepts from a CAP against multiple groups. These adversaries should be presented in both range and azimuth with the distance between groups varied to teach targeting skills. Adversary groups should each be in section and presented in a variety of tactical formations/ altitudes. Adversaries should be non-maneuvering within 20 miles from the merge.

Prerequisites. SACM-280

Ordnance. 4 AIM-9M, self-protect expendables and ALQ-164

Performance Standards. Successful formation analysis, targeting and threat countertactics. Shot validation per TOPGUN ROT.

External Syllabus Support. NA

SACM-282 1.0 T MTT/RWST S

Goal. Decoy tactics.

Requirement. Refine RADAR intercept skills against adversaries performing threat decoy tactics

Prerequisites. SACM-281

Ordnance. 4 AIM-9M, self-protect expendables and ALQ-164

Performance Standards. Successful formation analysis, targeting and threat countertactics. Shot validation per TOPGUN ROT.

External Syllabus Support. NA

ACM-283 1.0 T 2 AV-8B A

Goal. 1v1 Intercepts - Intro to GCI

Requirement. As a single aircraft, prosecute intercepts to a successful AIM-9 solution against a single adversary simulating a strike profile. Adversary maneuvering should be benign and limited to no more than flanking aspect. Emphasize intercept geometry, ROE, comm integration with AIC, and weapons employment. AIC

Prerequisites. SACM-282 and BFM-273.

Ordnance. CATM-9, TACTS, and self-protect expendables.

Performance Standards. Successful collision bearing intercepts to weapons employment. Shot validation per TOPGUN ROT.

External Syllabus Support. TACTS range, GCI/AIC

ACM-284 1.0 T,R 2 AV-8B A

Goal. 2v1 intercepts to engaged maneuvering

Requirement. Prosecute intercepts against a single maneuvering bandit. Emphasize ROE, communication cadence,

RWR reactions, mutual support, and weapons employment. AIC and radar adversary required

Prerequisites. ACM-283, BFM-274

Ordnance. CATM-9, TACTS, and self-protect expendables.

Performance Standards. Successful section attacks, defensive counters and disengagements. Shot validation per TOPGUN ROT.

External Syllabus Support. TACTS range, RDR adversary and AIC/GCI

ACM-285 1.0 T 2 AV-8B A

Goal. 2v1 intercepts - Practice GCI

Requirement. Prosecute intercepts against a single maneuvering bandit. Emphasize ROE, communication cadence, RWR reactions, mutual support, and weapons employment. AIC and radar adversary required

Prerequisites. ACM-284

Ordnance. CATM-9, TACTS, and self-protect expendables.

Performance Standards. Successful section attacks, defensive counters and disengagements. Shot validation per TOPGUN ROT.

External Syllabus Support. TACTS range, RDR adversary and GCI.

ACM-286 1.0 T,R,E 2 AV-8B A

Goal. 2v2 DCA (Point defense)(ACMQ)

Requirement. Conduct a point defense of a vital area against radar missile equipped adversaries. Emphasize counter radar tactics, ROE, communications, RWR reactions, and mutual support. AIC and radar adversary required. Perform one visual set up.

Prerequisites. ACM-285

Ordnance. CATM-9, TACTS, and self-protect expendables.

Performance Standards. Successfully defend vital area from attack and shot validation per TOPGUN ROT.

External Syllabus Support. TACTS range, RDR adversary and GCI.

8. Forward Base Operations (FB0)

a. Purpose. Refine and maintain the ability to operate from a expeditionary airfields and remote air facilities.

b. General. All events will be monitored by a qualified and current LSS.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (4 Events, 4.0 Hours)

SFBO-290 1.0 T WST/NWST/RWST S

Goal. Day FBO practice

Requirement. Practice precision V/STOL to a road. FOD should be a major concern throughout this simulator period. Instructor selected emergencies to include RPM rollback on T/O, abort and ejection decisions, water

failure in the decel, and no flaps programming on a STO.

Prerequisites. SFAM-200 and FBO lecture.

Ordnance. NA

Performance Standards. Perform precision STO, RVL, and VL's under LSS supervision. LSS critique required

External Syllabus Support. NA

SFBO-291 1.0 T NWST/RWST S NS

Goal. Night FBO practice

Requirement. Practice precision V/STOL to a road at night including night lighting and emergency

Prerequisites. SFBO-290

Ordnance. NA

Performance Standards. Perform precision STO, RVL, and VL's under LSS supervision. LSS critique required

External Syllabus Support. NA

FBO-292 1.0 T,R 1 AV-8B A

Goal. Day FBO.

Requirement. Practice precision V/STOL on a simulated/actual air facility. Perform precision VL's and maximum performance STO's under LSS control. Emphasize line-up, ground speed and touch down point. A minimum of 4 takeoffs and landings is required.

Prerequisites. SFBO-290 and FAM-201

Ordnance. NA

Performance Standards. Perform precision STO, RVL, and VL's under LSS supervision. Demonstrate ability to land and take off from a restricted landing area no larger than 100' by 3000'. LSS critique required

External Syllabus Support. Facility or Road

FBO-293 1.0 T,E 1 AV-8B A (NS)

Goal. Night FBO.

Requirement. Practice precision V/STOL on a simulated/actual air facility at night. Perform precision VL's and maximum performance STO's under LSS control. Emphasize line-up, ground speed and touch down point. A minimum of 4 takeoffs and landings is required.

Prerequisites. SFBO-291 and FBO-292

Ordnance. NA

Performance Standards. Perform precision STO, RVL, and VL's under LSS supervision. Demonstrate ability to land and take off from a restricted landing area no larger than 100' by 3000'. LSS critique required

External Syllabus Support. Facility or Road

14. Field Carrier Landing Practice

a. Purpose. Prepare a pilot for day shipboard V/STOL operations.

b. General. All procedures to be used while embarked shall be briefed and practiced where possible, including:

(1) Landing Pattern.

(2) Marshaling procedures.

(3) Initial and break procedures.

(4) Case 1-3 departures and recoveries.

(5) Landing/Deck procedures.

(6) Launch signals and abort procedures.

(7) Tram line and nozzle rotation line accuracy.

(8) Maximum performance climb out.

(9) LSO procedures and terminology.

(10) Abeam and over the stern translations.

This stage requires an LSO for all events. Pilots should use a simulated carrier deck and an optical landing system.

c. Ground/Academic Training. An FCLP/CQ stage brief including: AV-8B NATOPS procedures, LHA/LPH/LHD NATOPS manual, and VSTOL LSO NATOPS Manual.

d. Simulator / Flight Event Training (2 Events, 2.0 Hours)

SFCLP-295 1.0 T WST/NWST/RWST S

Goal. Day FCLP practice.
Requirement. Perform multiple approaches, takeoffs, and landings. Maximum performance STO, VTO, accel to decel, VLs. Preselected emergency procedures to include abort decisions.
Prerequisites. SFAM-200 and FCLP lecture.
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS. Minimum 6 Case I Recoveries.
External Syllabus Support. NA

FCLP-296 1.0 T,R,E 1 AV-8B A

Goal. Day FCLP.
Requirement. Perform STO, visual pattern, and vertical landing. Stress Tram line control and nozzle rotation. Introduce launch signals and abort procedures. Currency per LSO NATOPS.
Prerequisites. SFCLP-295 FAM 201
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS.
External Syllabus Support. FCLP facility

15. Carrier Qualification

a. Purpose. Develop and certify the PUI for day operations aboard naval

ships.

b. General. Operations shall be conducted in accordance with the NAVAIR 00-80T-111 LSO NATOPS Manual.

c. Ground/Academic Training. The squadron LSO will conduct CQ stage training prior to commencing the flight training. Training will include AV-8B NATOPS, LHA/LPH/LHD Manual, VSTOL LSO NATOPS Manual, Shipboard Operating Bulletin, squadron SOP's, and the particular ship's SOP required information. Completion of this stage constitutes a DAY CQ (STAGE TWO per VSTOL LSO NATOPS) qualification, which shall be recorded as QUAL-611.

d. Simulator / Flight Event Training (Events, 2.8 Hours)

SCQ-297 1.5 T WST/NWST/RWST S

Goal. Day CQ practice.
Requirement. Perform multiple approaches, takeoffs, and landings. Maximum performance STO, VTO, accel to decel, VL, and Case recoveries to include TACAN Primary (Straight-In) & Overhead, Needles and CCA approaches. Preselected emergency procedures, degraded systems, and weather.
Prerequisites. SFCLP-295
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS. Minimum 6 Case I Recoveries.
External Syllabus Support. NA

CQ-298 1.3 T,R,E 1 AV-8B A

Goal. Day CQ.
Requirement. As fuel and time permit, fly CASE III recoveries including TACAN Primary (Straight-In) & Overhead, CCA and needles approaches until on the fuel ladder or until "charlie" time. When required, fly to marshaling and perform a Case I or II recovery to the overhead pattern. STO's and VL's as appropriate. Successful completion leads to day qualification. Number of required landings is per VSTOL LSO NATOPS.
Prerequisites. SCQ-297 and FCLP-296
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS.
External Syllabus Support. USS SHIP

133. COMBAT QUALIFICATION TRAINING

1. Initial Combat Qualification Training

a. Purpose. To provide standardized instruction in tactics and weapon systems for the development of a combat qualified pilot. This phase of instruction is focused on developing advanced core skills and providing the requisite breadth and depth of exposure essential to prospective flight leaders.

b. General. Completion of this stage of flight training is a pre-requisite to starting the section leader buildup syllabus. Commanders may schedule pilots to fly events in this stage prior to completion of the Combat

Ready phase, provided individual event prerequisites are met. VTR debriefs will be utilized to the maximum extent possible and are required for TPOD sorties.

2. Precision Targeting

a. Purpose. Introduce and practice all displays, controls and procedures for proper use of the AA/AAQ-28 Litening II Targeting Pod (TPOD). Introduce employment of the TPOD in tactical scenarios.

b. General. Until the AV-8B flight simulator or MTT software is upgraded to support TPOD, events 310 and 311 shall be fulfilled by the PUI manipulating the TPOD in an aircraft on ground power. Each sortie requires video debrief of the TPOD video. Completion of this stage constitutes a TPOD qualification, which shall be recorded as QUAL-616.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (8 Events, 8.0 Hours)

SPT-310 1.0 T NWST/RWST S

Goal. Introduce the Litening Pod HOTAS, employment procedures and displays.

Requirement. Introduce proper warm-up, BIT, sensor head stowage and shut-down procedures. Include use of the CCD TV and FLIR, and introduce point track, area track and INR. Introduce laser and IR marker selection, arming and firing, and introduce masking effects and considerations. Emphasis should be placed on HOTAS functionality.

Prerequisites. SFAM-200

Ordnance. NA

Performance Standards. Demonstrate proficiency with Litening II Pod functions and HOTAS .

External Syllabus Support. NA

SPT-311 1.0 T NWST/RWST S

Goal. Practice Litening Pod HOTAS, employment procedures and displays at night.

Requirement. Practice PT 310. Introduce PGM support considerations and timelines. Introduce tactical attack profiles supporting PGMs to impact.

Prerequisites. SPT 310

Ordnance. PGMs, gun, and self-protect expendables.

Performance Standards. Demonstrate proficiency with Litening II Pod functions and HOTAS . Successfully guide PGMs to impact on a buddy lase and self lase profile.

External Syllabus Support. NA

PT-312 1.0 T 2 AV-8B A

Goal. Introduce the Litening Pod HOTAS, employment procedures and displays.

Requirement. Introduce proper warm-up, BIT, sensor head stowage and shut-down procedures. Include use of the CCD

TV and FLIR, and introduce point track, area track, INR and FOV usage. Introduce laser/training laser selection, arming and firing, and introduce masking effects and considerations. Emphasis should be placed on HOTAS functionality.

Prerequisites. SPT 311 FAM 201
Ordnance. NA
Performance Standards. Demonstrate proficiency with Litening II Pod functions and HOTAS . VTR debrief
External Syllabus Support. LASER safe range

PT-313 1.0 T 2 AV-8B A NS

Goal. Practice Litening Pod HOTAS, employment procedures and displays at night.

Requirement. Practice proper warm-up, BIT, sensor head stowage and shut-down procedures. Include use of short CAL, FLIR focus, white/black hot target acquisition considerations. Practice point track, area track, INR and FOV usage. Introduce IR marker selection, arming and firing, and practice masking effects and considerations. Emphasis should be placed on HOTAS functionality.

Prerequisites. PT 312, QUAL-614
Ordnance. NA
Performance Standards. Demonstrate proficiency with Litening II Pod functions and HOTAS . VTR debrief
External Syllabus Support. LASER safe range

PT-314 1.0 T,R 2 AV-8B A

Goal. Introduce scene interpretation, target ID and DMPI selection

Requirement. Expose PUI to varied tactical target sets. Fly IP to target runs against multiple targets including an industrial facility, bridge, airfield, communications facility, port, and complex multiple-DMPI target set. Compare CCD TV and FLIR images. Introduce "capture" criteria, weapons release timelines and laser-on timelines.

Prerequisites. PT 313
Ordnance. NA
Performance Standards. Identify and track selected DMPIs. Demonstrate proficiency in "capture" timelines and HOTAS firing of TRAINING laser. VTR debrief required.
External Syllabus Support. NA

PT-315 1.0 T 2 AV-8B A (N)

Goal. Introduce self-lase and buddy-lase target area mechanics.

Requirement. Fly multiple buddy-lase and self-lase IP-to-target runs. Practice "capture" timlines, intraflight deconfliction and threat lookout. Guide PGMs to impact with laser firing utilizing delayed Lase technique.

Prerequisites. PT 314
Ordnance. PGMs and self-protect expendables.
Performance Standards. Successfully lase to impact PGMs

released from both self-lase and buddy-lase profiles.

External Syllabus Support. LASER safe range

PT-316 1.0 T,R 2 AV-8B A (N)

Goal. Practice buddy-lase and introduce buddy-to-self target area mechanics

Requirement. Fly multiple buddy-lase and buddy-to-self IP-to-target runs. Practice "capture" timelines, intraflight deconfliction and threat lookout. Guide PGMs to impact with laser firing utilizing delayed lase technique.

Prerequisites. PT 315

Ordnance. PGMs and self-protect expendables.

Performance Standards. Successfully lase to impact PGMs released from both buddy-lase and buddy-to-self profiles.

External Syllabus Support. LASER safe range

PT-317 1.0 T,R,E 2 AV-8B A NS

Goal. Conduct night CAS utilizing Litening Pod.

Requirement. Introduce and practice using the Litening Pod in a night CAS scenario. Confirm target location with the FAC using the IR marker. Practice timing and geometry considerations to aid wingman target acquisition / attack with IR marker, and lase PGMs to impact if applicable.

Prerequisites. PT 316 and CAS 255

Ordnance. PGMs and self-protect expendables.

Performance Standards. Demonstrate proficiency in utilizing the Litening pod sensors to aid in target acquisition. Successfully mark the target and adjust mark if required by FAC. Successfully manage timeline and deconfliction to mark target for wingman, and guide PGMs to impact.

External Syllabus Support. LASER safe range, terminal control

3. Close Air Support (CAS)

a. Purpose. Develop proficiency in the tactical employment of the AV-8B in CAS missions in an urban environment. Pilots may fly this stage either day or night. If flown at night, this stage should be flown using NVDs and flight participants shall meet all applicable directives.

b. General. The following resources should be used throughout this stage to enhance pilot training:

(1) MACCS.

(2) TACP.

(3) FAC(A).

(4) Supporting arms.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (1 Events, 1.0 Hours)

CAS-340 1.0 T 2 AV-8B A (N)

Goal. Introduce CAS in an urban environment

Requirement. Introduce urban environment effects on attack direction, acquisition, laser usage, and target identification. Discuss collateral damage considerations.

Prerequisites. CAS 253 (CAS 255 if flown at night)

Ordnance. PGM's, rockets, gun and self-protect expendables.

Performance Standards. Fly successful attacks against targets in an urban environment. Ensure frag effects and weapon fuzing considerations are met.

External Syllabus Support. Urban CAS target array

4. Armed Reconnaissance

a. Purpose. Develop proficiency in the tactical employment of the AV-8B in AR missions with the help of a SCAR asset. Pilots may fly this stage either day or night. If flown at night, this stage should be flown using NVDs and flight participants shall meet all applicable directives.

b. General. The preferred SCAR asset for this stage is an aircrew that has completed an appropriate T/M/S SCAR syllabus. Lacking this, training may be conducted using any other OAS trained aircrew fulfilling the SCAR role. The following resources should be used throughout this stage to enhance pilot training:

(1) MACCS.

(2) No drop weapons scoring or scored ranges.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (1 Events, 1.0 Hours)

AR-341 1.0 T 3 AV-8B A (N)

Goal. Introduce SCAR in support of section armed reconnaissance.

Requirement. Conduct medium altitude armed reconnaissance with a SCAR platform. Emphasize shooter/cover responsibilities, integration/deconfliction with the SCAR and battlefield handover. SCAR aircraft should have a LASER designation capability.

Prerequisites. AR 246 (AR 247 if flown at night)

Ordnance. Free-fall ordnance and self-protect expendables.

Performance Standards. Fly successful attacks against targets as assigned by SCAR asset. Ensure frag effects and weapon fuzing considerations are met.

External Syllabus Support. SCAR platform, impact area

5. Air Interdiction

a. Purpose. Develop proficiency in conducting an AI mission against an

air threat. Emphasis in this stage is on APG-65 usage, RWR and RAP interpretation, decision timelines and threat reaction. Pilots may fly this stage either day or night. If flown at night, this stage should be flown using NVDs and flight participants shall meet all applicable directives.

b. General. The MACCS should be used throughout this stage to enhance pilot training.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (1 Events, 1.0 Hours)

AI-342 1.0 T,E 2 AV-8B A (N)

Goal. Introduce medium altitude AI as a section with an air threat.

Requirement. Conduct air interdiction against an air threat. Emphasize RAP and RWR interpretation, threat reaction, mutual support, communication, weapons system optimization, and target acquisition.

Prerequisites. AI 241

Ordnance. PGMs and self-protect expendables.

Performance Standards. Timely threat recognition, reaction, and maintenance of mutual support. Ensure frag effects and weapon fuzing considerations are met. Ensure shot validation is IAW TOPGUN ROT.

External Syllabus Support. Adversaries, impact area

6. Air-to-Surface

a. Purpose. Introduce tactical employment of the AV-8B as a member of a Division. Practice skills required to maintain situational awareness and mutual support while optimizing weapons effects and minimizing risk exposure while prosecuting target attacks. Refine skills in the delivery of air-to-ground ordnance.

b. General.

(1) Pilots may fly sorties in this stage at any time in their progression, provided individual event prerequisites are met.

(2) At the completion of this stage, the pilot should be exposed to:

(a) Shooter / cover section tactics

(b) Compressed TOTs vs. frag effects

(c) Compressed TOTs vs. smoke/secondary effects

(d) Section role swap

(e) Ingress / egress deconfliction plans

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (2 Events, 2.0 Hours)

AS-343 1.0 T,R 4 AV-8B A

Goal. Introduce and practice division target area mechanics

Requirement. Introduce division target area mechanics, including compressed TOTs. Introduce shooter/cover coordinated sections. Attacks should be run from an IP to a tactical target. Emphasize mutual support and deconfliction.

Prerequisites. AS 214

Ordnance. 6 MK-76 and self-protect expendables.

Performance Standards. Target area communication, shooter/cover techniques and deconfliction. Ensure frag effects and weapon fuzing considerations are met.

External Syllabus Support. Impact area

AS-344 1.0 T,E 4 AV-8B A NS

Goal. Introduce and practice division target area mechanics at night

Requirement. Introduce division target area mechanics at night, including compressed TOTs. Practice shooter/cover coordinated sections. Attacks should be run from an IP to a tactical target. Emphasize mutual support and deconfliction during aided night operations.

Prerequisites. AS 343, QUAL-614

Ordnance. 6 MK-76 and self-protect expendables.

Performance Standards. Target area communication, shooter/cover techniques and deconfliction. Ensure frag effects and weapon fuzing considerations are met.

External Syllabus Support. Impact area

7. Assault Support Escort

a. Purpose. Introduce and develop proficiency in the techniques of escorting assault support aircraft at night. Upon completion of this stage, the pilot should be able to:

(1) Demonstrate proficiency as a flight member in a night assault support escort mission.

(2) Understand night considerations and limitations while conducting an assault support mission.

(3) Understand the advantages, limitations and capabilities of NVD, FLIR and TPOD as they apply to night assault support operations.

b. General. The pilot must have a thorough knowledge of assault support routing. Be ready to provide protection from fixed and rotary-wing threat aircraft, provide protection from ground threats, be prepared to clear landing zones and provide assistance for TRAP and ResCAP. These tasks must be able to be completed whether the escorted aircraft is in an aided or unaided lighting configuration.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (1 Events, 1.0 Hours)

ASE-360 1.0 T,E 2 AV-8B A NS

Goal. Night assault support escort

Requirement. Conduct an Escort mission for assault package at night. Emphasize planning and integrating with the assault support package

Prerequisites. ASE 260, CAS-255, AR-247

Ordnance. Free-fall ordnance and self-protect expendable and illumination.

Performance Standards. Demonstrate knowledge of assault support and escort tactics.

External Syllabus Support. Assault support aircraft, impact area

8. Field Carrier Landing Practice

a. Purpose. Prepare a pilot for night aided / unaided shipboard V/STOL operations. All procedures to be used while embarked shall be briefed and practiced where possible, including:

(1) Marshaling/arrival to CCA procedures.

(2) CCA procedures.

(3) Night aided / unaided patterns.

(4) Night optical landing aids utilization.

(5) Night aided / unaided landing/deck procedures.

(6) Night aided / unaided launch signals and techniques.

(7) Abort procedures.

(8) LSO procedures.

(9) Ship procedures.

b. General. This stage requires an LSO for all events. Pilots should use a simulated carrier deck and an optical landing system. Pilots shall be NSQ for aided operations.

c. Ground/Academic Training. A night FCLP/CQ stage brief including: AV-8B NATOPS procedures, LHA/LPH/LHD NATOPS manual, and VSTOL LSO NATOPS Manual.

d. Simulator / Flight Event Training (4 Events, 5.0 Hours)

SFCLP-390 1.0 T NWST/RWST S N

Goal. Night FCLP practice.

Requirement. Perform multiple approaches, takeoffs, and landings at night. Maximum performance STO, VTO, accel to decel, VL, CCA, AWLS approach, and case recoveries. Preselected emergency procedures to include abort decisions.

Prerequisites. SFCLP-295
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS.
External Syllabus Support. NA

SFCLP-391 1.0 T NWST/RWST S NS

Goal. Night Aided FCLP practice.
Requirement. Perform multiple takeoffs, and landings at night utilizing NVD. Maximum performance STO, VL, and case I recoveries.
Preselected emergency procedures to include abort decisions.
Prerequisites. SFCLP-390
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS.
External Syllabus Support. NA

FCLP-392 1.5 T,R,E 1 AV-8B A N

Goal. Night FCLP.
Requirement. Perform STO to Night CCA pattern and transition to OLS and perform VL. Introduce night deck handling and launch procedures/signals. A lighted simulated carrier deck shall be used. Two CCA patterns to OLS to VL shall be flown in daylight conditions prior to commencing night ops for initial qualifications.
Prerequisites. SFCLP-390, FCLP-296
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS.
External Syllabus Support. FCLP facility.

FCLP-393 1.0 T,R,E 1 AV-8B A (NS)

Goal. Night Aided FCLP.
Requirement. Perform STO to case I recovery. Introduce night aided deck handling and launch procedures/signals. An NVD compatible simulated carrier deck shall be used.
Prerequisites. SFCLP-391, FCLP-392, FCLP-296
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS.
External Syllabus Support. FCLP facility.

9. Carrier Qualification

a. Purpose. Develop and certify the PUI for night aided and unaided operations aboard naval ships.

b. General. Operations shall be conducted in accordance with the NAVAIR 00-80T-111 LSO NATOPS Manual.

c. Ground/Academic Training. For initial night qualification, a training / advanced LSO will conduct CQ stage training prior to commencing the flight training. Training will include AV-8B NATOPS, LHA/LPH/LHD Manual, VSTOL LSO NATOPS Manual, Shipboard Operating Bulletin, squadron SOP's, and the particular ship's SOP required information. Operations other than initial

training may be conducted by a basic LSO. Completion of this stage constitutes a Night CQ (STAGE FOUR per VSTOL LSO NATOPS) qualification, which shall be recorded as QUAL-612.

d. Simulator / Flight Event Training (4 Events, 5.0 Hours)

SCQ-394 1.0 T NWST/RWST S N

Goal. Night CQ practice.
Requirement. Perform multiple approaches, takeoffs, and landings at night. Maximum performance STO, VTO, accel to decel, VL, CCA, AWLS approach, and case recoveries. Preselected emergency procedures, degraded systems, and Weather.
Prerequisites. SFCLP-391, SCQ-297
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS.
External Syllabus Support. NA

SCQ-395 1.0 T NWST/RWST S NS

Goal. Night Aided CQ practice.
Requirement. Perform multiple takeoffs, and landings at night using NVD. Maximum performance STO, and case I recoveries. Preselected emergency procedures, degraded systems.
Prerequisites. SFCLP-394
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS.
External Syllabus Support. NA

CQ-396 1.5 T,R,E 1 AV-8B A N

Goal. Night CQ.
Requirement. Night carrier qualification. Depart marshal for a Case III recovery to low approach, wave off into the CCA pattern. Repeat CCA circuit as fuel allows.
Prerequisites. SCQ-395, CQ-298
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS.
External Syllabus Support. SHIP

CQ-397 1.5 T,R,E 1 AV-8B A (NS)

Goal. Night Aided CQ.
Requirement. Night Aided carrier qualification. STO off into the Case I pattern. Repeat Case I circuit.
Prerequisites. SCQ-396
Ordnance. NA
Performance Standards. Per VSTOL LSO NATOPS.
External Syllabus Support. SHIP

10. Air Combat Maneuvering

a. Purpose. Introduce and practice radar intercepts at night. This

phase is designed to provide the PUI an opportunity to amalgamate the core skills of ACM and NS.

b. General. Flights should make use of available instrumented air combat maneuvering ranges and GCI / AIC. Upon completion of this stage pilot should be competent in night section intercepts culminating in both AAM firing and escort positions.

c. Ground/Academic Training. Pilots should be familiar with the NS and ACM ASPs as outlined in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (1 Events, 1.0 Hours)

ACM-399 1.0 T,R,E 1 AV-8B A NS

Goal. Introduce night intercept procedures
Requirement. Introduce intercept procedures at night on non-maneuvering, single group presentations. Two intercepts will be conducted with a chased lead aircraft. The PUI will perform one stern conversion and one collision bearing intercept. The remaining intercepts will be flown as wingman in section.
Prerequisites. QUAL-614,QUAL-613
Ordnance. CAIM-9 and self-protect expendables
Performance Standards. Execute a stern conversion intercept to arrive no more than 1.5 nm in trail of adversary aircraft. Execute a collision bearing intercept to arrive at a forward quarter weapons
External Syllabus Support. ACM training area

134. FULL-COMBAT QUALIFICATION TRAINING

1. Initial Full Combat Qualification Training

a. Purpose. To train for large scale integrated missions, events having unique mission tasking, or those events having a low probability of execution. This phase also trains pilots capable of leading/directing flights of numerous aircraft in a complex wartime scenario.

b. General. This phase of instruction is focused on developing the full combat qualified flight leader skills essential to mission success. The instruction provides exposure to all mission areas assigned to the AV-8B and includes flight lead responsibilities for large force exercises.

2. Night Systems (NS)

a. Purpose. Develop proficiency in the use of Night Vision Devices (NVD's) and aircraft NS in the night LAT environment.

b. General. The PUI is NS(low) qualified at successful completion of this stage.

(1) Pilots shall conduct training per T&R Manual, Administrative. All flights in this stage shall be flown with an NSI.

(2) Forced performance (minimum altitude, airspeed, aerodynamic, vector and time control) is required during each simulator sortie so instructors may evaluate terrain clearance tasks and mission cross checks.

(3) NS LAT simulator and flight training for initial qualification requires an NSI as a monitor/flight lead.

(4) Completion of this stage constitutes a NS Low qualification, which shall be recorded as QUAL-615.

(5) Pilots shall be NS(H) and LAT Qualified prior to flight training.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (6 Events, 6.0 Hours)

SNS-420 1.0 T NWST/RWST S NS

Goal. Introduce basic and advanced NS LAT.

Requirement. Perform low altitude basic flight maneuvers on a closed LAT circuit. PUI practice straight and level flight, level turns, sustained and hard turns, ridgeline crossings, terrain masking, and climb-to-cope procedures. Practice efficient scan techniques which enable aerodynamic control, vector control, AGL control, and time control. Emphasize TCT/MCT. Introduce all advanced LAT maneuvers, to include transition to LAT, vertical jink, SOJ, TOJ, ROJ, SCT, guns jink and break turns. Emphasize adherence to the 10 degree rule, 50% dive recovery rule and step down recovery altitudes. Demonstrate low angle high illumination NVD problems. Flight should be flown in a mountainous terrain database and in a high to medium light environment.

Prerequisites. QUAL-614, QUAL-610

Ordnance. NA

Performance Standards. All maneuvers flown within MAWTS-1 established guidelines in the ASP.

External Syllabus Support. NA

SNS-421 1.0 T,R NWST/RWST S NS

Goal. Review basic and advanced NS LAT. Introduce target attacks in the LAT environment.

Requirement. Practice basic and advanced low altitude tactical maneuvers over a planned low altitude route. Include advanced LAT during a threat reaction circuit. Introduce standard target attacks in the LAT environment. Demonstrate proficiency at 200-500 ft AGL (+100/-50 ft). Emphasize efficient scan techniques, aerodynamic control, vector control, AGL control and time control.

Prerequisites. SNS-420

Ordnance. NA

Performance Standards. All maneuvers flown within MAWTS-1 established guidelines in the ASP.

External Syllabus Support. NA

NS-422 1.0 T 2 AV-8B A NS

Goal. Introduce basic NS LAT.

Requirement. As a chased aircraft, perform low altitude basic flight maneuvers on closed LAT circuit. PUI practice straight and level flight, level turns, sustained and hard turns, ridgeline crossings, terrain masking, and climb-to-cope procedures. Practice efficient scan techniques which enable aerodynamic control, vector control, AGL control, and time control. Emphasize TCT/MCT.

Prerequisites. SNS-421

Ordnance. NA

Performance Standards. Performance/maneuvers per MAWTS ASP. Video debrief required.

External Syllabus Support. Approved LAT area or MTR.

NS-423 1.0 T,R 2 AV-8B A NS

Goal. Introduce advanced NS LAT.

Requirement. As a single chased aircraft on a closed LAT course, the PUI shall repeat advanced LAT maneuvers performed during SNS-360/361 and react to simulated SAM and AAA. Emphasize scan and all LAT rules.

Prerequisites. NS-422

Ordnance. NA

Performance Standards. Performance/maneuvers per MAWTS ASP. Video debrief required.

External Syllabus Support. Approved MTR or LAT area.

NS-424 1.0 T 2 AV-8B A NS

Goal. Introduction to NS LAT as a wingman.

Requirement. As a wingman, conduct basic and advanced section maneuvering on a planned LAT circuit. Stress MCT workload management, formation position keeping, mutual support, deconfliction, and roles/responsibilities within the formation. Emphasis of the sortie is on proper formation skills.

Prerequisites. NS-423

Ordnance. NA

Performance Standards. Performance/maneuvers per MAWTS ASP. Video debrief required.

External Syllabus Support. Approved MTR or LAT area.

NS-425 1.0 T,R,E 2 AV-8B A NS

Goal. Introduce low altitude target area mechanics in the NS environment.

Requirement. As a lead and then wingman, introduce low altitude target area mechanics. Practice section reactive maneuvering versus simulated SAM/AAA threat. Emphasize MCT workload management, attack geometry, frag avoidance, tactical communication and mutual support.

Prerequisites. NS-424

Ordnance. Free-fall ordnance and self-protect expendables.

Performance Standards. Performance/maneuvers per MAWTS ASP. Video debrief required.

External Syllabus Support. EW and ordnance delivery

3. Air Interdiction.

a. Purpose. Develop proficiency in the tactical employment of the AV-8B in the air interdiction role in the low and medium altitude day and night in a division against an air threat. If flown at night, this stage should be flown using NVDs and flight participants shall meet all applicable directives.

b. General. At the completion of this stage the PUI should be able to:

(1) Demonstrate proficiency in the execution of section and division air interdiction missions, day and night, at both low and medium altitude.

(2) The following resources should be used throughout this stage to enhance pilot training:

(a) MACCS.

(b) VRS tape debrief all sorties.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (4 Events, 4.0 Hours)

AI-440 1.0 T,E 2 AV-8B A NS

Goal. Practice night section aerial interdiction mission at low altitude.

Requirement. Conduct a low altitude aerial interdiction mission requiring a low altitude ingress/egress. Emphasize flight leadership, low altitude deconfliction and attack geometry timing, weapons delivery skills, threat reaction, mutual support, and frag avoidance.

Prerequisites. QUAL-615 and AI-242

Ordnance. Free-fall ordnance and self-protect expendables.

Performance Standards. Timing within 15 seconds and CEP < 12 mils

External Syllabus Support. MTR/ impact area

AI-442 1.0 T 4 AV-8B A (N)

Goal. Introduce division medium altitude aerial interdiction mission

Requirement. As a division, conduct an aerial interdiction mission requiring a medium altitude ingress/egress. Emphasize flight leadership, attack timing and geometry, deconfliction, weapons delivery, threat reaction, mutual support, and frag avoidance.

Prerequisites. AI-241, AS-343 (AI-243, AS-344 if at night).

Ordnance. Free-fall ordnance and self-protect expendables.

Performance Standards. Timing within 15 seconds and CEP < 12 mils

External Syllabus Support. MTR impact area.

AI-443 1.0 T 4 AV-8B A (N)

Goal. Introduce division low altitude aerial interdiction mission

Requirement. As a division, conduct an aerial interdiction mission requiring a low altitude ingress/egress. Emphasize flight leadership, attack timing and geometry, deconfliction, weapons delivery, threat reaction, mutual support, and frag avoidance.

Prerequisites. AI 242 AS 343 (AI 440, AS 344 if at

Ordnance. Free-fall ordnance and self-protect expendables.

Performance Standards. Timing within 15 seconds and CEP < 12 mils

External Syllabus Support. MTR / restricted area, EW range and ordnance delivery area.

AI-445 1.0 T 4 AV-8B A (N)

Goal. 4 v X division strike against a defended point target.

Requirement. As a division, conduct a strike with an unknown number of adversaries. Emphasize coordinate planning, sound tactical decision making, and communication integration. Division game plans should exploit deception/decoy tactics. AIC required. A minimum of two dissimilar adversaries required.

Prerequisites. AI-241 AS 343 (AI 243, AS 344 if at

Ordnance. Free-fall ordnance, CATM-9, TACTS, and self-protect expendables.

Performance Standards. Timely threat recognition, reaction, and maintenance of mutual support. Ensure frag effects and weapon fuzing considerations are met. Ensure shot validation is IAW TOPGUN ROT.

External Syllabus Support. MTR / restricted area, EW range and ordnance delivery area. 2 adversary aircraft / GCI

4. Close Air Support.

a. Purpose. Develop proficiency in the tactical employment of the AV-8B in the close air support role in the low altitude night environment. Flight leads are responsible for designing threat level that supports the tactically sound execution of the profiles. All pilots shall be NS(low) qualified before beginning this stage.

b. General. At the completion of this stage the PUI should be able to:

(1) Demonstrate proficiency in the execution of section close air support missions in the low altitude night environment.

(2) Deliver conventional ordnance on tactical targets demonstrating the proper use of sensors/systems.

(3) Use the TACSOP to develop reactive weaponeering for various target arrays.

(4) Ordnance requirements may include any authorized TACMAN AG store.

(5) The pilot should be familiar with the use of the following external agencies and how to integrate them in the close air support stage:

(a) MACCS.

(b) No drop weapons scoring or scored ranges.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (1 Events, 1.0 Hours)

CAS-441 1.0 T,E 2 AV-8B A NS

Goal. Introduce low altitude section CAS at night.
Requirement. Conduct CAS requiring a low altitude ingress/egress. Emphasize flight leadership, timing, mutual support, target area mechanics, and communication.
Prerequisites. QUAL-615, CAS-254
Ordnance. GP bombs (simulated) self-protect expendables.
Performance Standards. Fly successful attacks against selected targets sets. Ensure frag effects and weapon fuzing considerations are met.
External Syllabus Support. EW and impact area.

5. Armed Reconnaissance.

a. Purpose. Develop proficiency in the tactical employment of the AV-8B in the armed reconnaissance role in the low and medium altitude day and night in a division utilizing a SCAR asset. If flown at night, this stage should be flown using NVDs and flight participants shall meet all applicable directives.

b. General. At the completion of this stage the PUI should be able to demonstrate proficiency in the execution of section and division armed reconnaissance missions, day and night, at medium altitude. The following resources should be used throughout this stage to enhance pilot training:

(1) MACCS.

(2) No drop weapons scoring or scored ranges.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (1 Events, 1.0 Hours)

AR-444 1.0 T 4 AV-8B A (N)

Goal. Introduce division medium altitude armed reconnaissance.
Requirement. As a division, conduct medium altitude armed reconnaissance. Emphasize target acquisition, threat reaction, mutual support, target area mechanics, and deconfliction. Target area mechanics should incorporate shooter/cover sections.

Prerequisites. AS-343, AR-246 (AR-247, AS-344 if at night).
Ordnance. Free-fall ordnance and self-protect expendables.
Performance Standards. 3 successful target attacks. Demonstrate proficiency in TACSOP Armed Recce profiles
External Syllabus Support. Impact area

6. Air Combat Maneuvering

a. Purpose. Refine proficiency in the tactical employment of the AV-8B during AAW missions in a multi bogey environment in both section and division. At the completion of this stage the pilot should be able to:

(1) Conduct point defense mission against RADAR equipped adversaries on strike or sweep missions.

(2) Demonstrate proficiency in identifying and evaluating threat systems and devising and conducting appropriate counter-tactics.

b. General. Squadrons should use the full spectrum of USMC/USN/Joint assets to include command and control assets and fighters.

c. Ground Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (2 Events, 2.0 Hours)

ACM-470 1.0 T 2 AV-8B A

Goal. 2 v X point defense against unknown radar equipped adversaries.
Requirement. Conduct a point defense against radar missile equipped adversaries. Emphasize counter radar tactics, ROE, communications, RWR reactions, and mutual support. AIC and radar adversary required. Perform one visual set up.
Prerequisites. QUAL-613
Ordnance. CATM-9 and self-protect expendables.
Performance Standards. Successfully defends vital area. Shot validation per TOPGUN ROT.
External Syllabus Support. Restricted area. 2 adversary aircraft minimum / GCI

ACM-471 1.0 T,E 4 AV-8B A

Goal. 4 v X point defense against unknown radar equipped adversaries.
Requirement. Conduct a point defense against radar missile equipped adversaries. Emphasize counter radar tactics, ROE, communications, RWR reactions, and mutual support. AIC and radar adversary required. Perform one visual set up.
Prerequisites. AA-470
Ordnance. CATM-9 and self-protect expendables.
Performance Standards. Successfully defends vital area. Shot validation per TOPGUN ROT.
External Syllabus Support. Restricted area. 2 adversary

aircraft minimum / GCI

7. Large Force Exercise

a. Purpose. Refine proficiency in the tactical employment of the AV-8B in OAS missions in a division. Pilots may fly night OAS sorties either aided or unaided, but if NVDs are used, flight participants shall meet all applicable directives. At the completion of this stage the pilot should be able to:

(1) Conduct air interdiction against a point defense.

(2) Participate in a large force integrated exercise, day and night.

(3) Deliver conventional ordnance and PGM's on tactical sized targets in either day or night conditions using available sensors. No Bomb Drop Scoring (NBDS) is a suitable substitute for conventional ordnance.

(4) Demonstrate proficiency in identifying and evaluating threat systems and devising appropriate counter-tactics.

b. General. Squadrons should use the full spectrum of USMC/USN/Joint command and control, to include command and control assets, SEAD, EA/ES, Air refueling, and fighters. Qualified Mission Commander participation is required.

c. Ground Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (2 Events, 3.0 Hours)

LFE-480 1.5 T,R,E 4 AV-8B A

Goal. Day LFE Strike
Requirement. As part of a division, participate in a large force exercise strike package. Strike should be supported with command and control assets, SEAD, EA, ES, Air refueling, and fighters.
Prerequisites. AI-241 AS 343
Ordnance. Free-fall ordnance, CATM-9, TACTS, and self-protect expendables
Performance Standards. Timely threat recognition, reaction, and maintenance of mutual support. Ensure frag effects and weapon fuzing considerations are met. Ensure shot validation is IAW TOPGUN ROT.
External Syllabus Support. MTR / restricted area, EW range and ordnance delivery area. 2 adversary aircraft minimum / GCI

LFE-481 1.5 T,E 4 AV-8B A NS

Goal. Night LFE Strike
Requirement. As part of a division at night, participate in a large force exercise strike package. Strike should be supported with command and control assets, SEAD, EA, ES, Air refueling, and fighters.
Prerequisites. AI 243, AS 344
Ordnance. Free-fall ordnance, CATM-9, TACTS, and self-protect

expendables

Performance Standards. Timely threat recognition, reaction, and maintenance of mutual support. Ensure frag effects and weapon fuzing considerations are met. Ensure shot validation is IAW TOPGUN ROT.

External Syllabus Support. MTR / restricted area, EW range and ordnance delivery area. 2 adversary aircraft minimum / GCI

8. Strike Coordination and Reconnaissance

a. Purpose. Conduct day or night Strike Coordination And Reconnaissance (SCAR). Emphasis should be placed on locating targets in accordance with a target precedence list, notifying armed reconnaissance assets of target locations and current threat, and proper information flow through the C^3 system.

b. General. At the completion of this stage the PUI should be able to:

(1) Demonstrate proficiency in the execution of strike coordination and reconnaissance at medium altitude.

(2) Coordinate at a minimum one element of armed reconnaissance

(3) Locates targets with an error less than 300 meters.

(4) Prioritizes targets according to target precedence list.

Assists armed reconnaissance assets in locating targets and coordinates target attacks.

c. Ground/Academic Training. Academic requirements are delineated in the MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (2 Events, 2.6 Hours)

SCAR-490 1.3 T,R,E 3 AV-8B A

Goal. Conduct day Strike Coordination and Reconnaissance (SCAR). Emphasis should be placed on locating and plotting targets in accordance with a target precedence list, notifying armed reconnaissance assets of target locations and current threat and proper information flow.

Requirement. Coordination of one element of armed reconnaissance required for completion.

Prerequisites. QUAL-616

Ordnance. 5" rockets and self-protect expendables.

Performance Standards. (a) Locates and plots targets with an error less than 100 meters. (b) Prioritizes targets according to a target precedence list. © assists armed reconnaissance assets in locating targets and coordinates target attacks.

External Syllabus Support. One fixed wing AR element. Impact / LASER safe delivery area

SCAR-491 1.3 T,R,E 3 AV-8B A NS

Goal. Conduct night Strike Coordination and Reconnaissance (SCAR).

Requirement. Coordination of one element of armed reconnaissance required for completion.

Prerequisites. SCAR-490

Ordnance. 5" rockets and self-protect expendables.

Performance Standards. (a) Locates and plots targets with an error less than 100 meters. (b) Prioritizes targets according to a target precedence list. © assists armed reconnaissance assets in locating targets and coordinates target attacks.

External Syllabus Support. One fixed wing AR element. Impact / LASER safe delivery area

140. INSTRUCTOR UNDER TRAINING FLIGHT/SIMULATOR/EVENT PERFORMANCE REQUIREMENTS

1. TAV-8B Familiarization

a. Purpose. Demonstrate proficiency and familiarization with the aircraft flight envelope, V/STOL characteristics and limitations, emergency procedures, and aerobatics. In addition, familiarize the IUT with training objectives, instructional methods, and common student problem areas.

b. General. Because the Combat Capable FAM stage uses a building block concept, complete standardization among instructor pilots is paramount in this stage. Differing individual techniques are useful instructional tools as long as instructors achieve overall standardization. All VMAT-203 instructors will qualify in the TAV-8B, using the training in paragraphs 150.1c and below.

c. Ground/Academic Training. IUT must be knowledgeable in the squadron SOP and FAM briefing guide. IUT must attend all FAM stage briefings and receive the Flight Instructor Training Course (FITC) at the squadron.

d. Simulator/Flight Event Training (4 Events, 5.5 Hours)

SIUT-500 1.0 E WST/NWST/RWST S

Goal. IUT demonstrate thorough knowledge of and ability to execute FAM phase maneuvers IAW published FSG

Requirement. IP demonstrate proper briefing and debriefing techniques. IUT plan sortie IAW FSG standards. IUT demonstrate ability to execute IAW FSG standards.

Prerequisites. Read FAM phase FSG.

Ordnance. NA

External Syllabus Support. NA

SIUT-501 1.5 E WST/NWST/RWST S

Goal. IUT demonstrate thorough knowledge of and ability to execute NATOPS emergency procedures IAW published SOP standards and NATOPS.

Requirement. IP demonstrate proper briefing and debriefing techniques.

Prerequisites. SIUT-500

Ordnance. NA

External Syllabus Support. NA

IUT-502 1.5 E 1 TAV-8B A

Goal. IUT demonstrate thorough knowledge of and ability to execute FAM phase maneuvers from the rear seat of the TAV-8B IAW published FSG standards.

Requirement. IUT plan sortie IAW FSG standards. IUT demonstrate proper briefing and debriefing techniques. IUT demonstrate ability to execute IAW FSG standards. Emphasis for this sortie is TAV-8 rear seat familiarization and FAM standardization, not IUT instructional techniques.

Prerequisites. SIUT-501

Ordnance. NA
External Syllabus Support. NA

IUT-503 1.5 E 1 TAV-8B A

Goal. Review IUT's knowledge of and ability to execute FAM phase maneuvers from the rear seat of the TAV-8B IAW published FSG standards.

Requirement. IUT plan sortie IAW FSG standards. IUT demonstrate proper briefing and debriefing techniques. IUT Demonstrate ability to execute IAW FSG standards. Emphasis for this sortie is TAV-8 rear seat familiarization and FAM standardization, not IUT instructional technique. Serves as TAV-8 rear seat instructor qualification.

Prerequisites. IUT-502
Ordnance. NA
External Syllabus Support. NA

2. Landing Site Instructor (LSI)

a. Purpose. Standardization check of AV-8B instructor pilots with emphasis on correct instructional and briefing/debriefing techniques for specific landing evolutions.

b. General. Ensure standardization of the AV-8B Combat Capable training stage of instruction. All instructor pilots will display a thorough knowledge of squadron SOP and comply with this manual and the syllabus guide.

c. Ground Training

(1) LSI-1. Review of NATOPS, squadron SOP, airfield course rules, V/STOL aerodynamics (to include all types of takeoffs and landings), and LSI responsibilities. Observe a qualified LSI briefing, controlling, and debriefing V/STOL evolutions. Become familiar with proper communication procedures, voice calls, position of "paddles", and flight evaluations.

(2) LSI-2. Introduction to LSI control. Control V/STOL evolutions under the supervision of a designated LSI. IUT to brief/debrief local FAM solo flight. Not required for current LSO/LSS qualified IUT's.

(3) LSI-3. Review LSI control of FAM solo flights. Brief/Debrief under supervision of a designated LSI. At completion, Day LSI qualification will be awarded. Ensure complete standardization.

(4) LSI-4. Review LSI control introducing night LSI procedures. IUT to control and supervise night V/STOL evolutions under direction of a designated LSI. At the completion, night LSI qualification will be awarded.

(5) LSI-5. Review LSS control and introduce FBO operations from an approved EAF site. IUT must be a designated CAL/facility/simulated road LSS. IUT must control a minimum of one of each of the following events/evolutions: RVL, VTO, ACCEL, DECEL, VL to the runway and CAL site operation. FRS LSS qualification at successful completion of this event.

(6) LSI-6. Review LSO control per LSO NATOPS for FCLP operations. IUT must be a designated Day V/STOL LSO. IUT will observe two passes and control two passes. Not required for LSO's who are current within 6 months. FRS LSO qualification at successful completion of this event.

d. Simulator/Flight Event Training. None.

3. AV-8B Instructor Pilot

a. Purpose. Standardization check of AV-8B IP's with emphasis on correct instructional and briefing/debriefing techniques.

b. General. Ensure standardization of the AV-8B combat capable training stage of instruction. All IP's will display a thorough knowledge of and comply with the squadron SOP and this manual.

c. Ground/Academic Training. An instructor pilot shall pass a written standardization test administered by that particular stage's STAN officer before gaining an IP qualification in a particular stage of instruction (i.e., AG, NAV, INST.) The following additional ground IUT events are also required for qualification in their applicable stage.

(1) GIUT-518. Monitor the brief / debrief of a low altitude CAS sortie; CAS-144.

(3) GIUT-521. Monitor the brief / debrief of combination FAM and FORM sortie; FAM-18 thru 22. Monitor FAM phase brief and complete the FAM Stan test. Monitor FORM phase brief and complete the FORM Stan test.

(4) GIUT-531. Monitor the brief / debrief of 1v1 BFM sortie; BFM-154 thru 156.

(5) GIUT-532. Monitor the brief / debrief of a 2v1 BFM sortie; BFM-157 or 158.

(6) GIUT-535. Monitor the bandit brief / debrief of 2v1 BFM sortie; serves as FRS bandit qualification. Must be designated ACM qualified.

(7) GUIT-537. Monitor the brief / debrief of a FAM-13. Serves as early stage FAM qualification.

(8) GIUT-541. Monitor the brief / debrief of a STRIKE-180.

(9) GIUT-542. Monitor the brief / debrief of a AAR-161.

d. Simulator / Flight Event Training (35 Events, 51.0 Hours)

SIUT-504 0.5 E WST/NWST/RWST S

Goal. Demonstrate set-up, in-flight management and debriefing capabilities of the high fidelity simulator.

Requirement. CSI/IP demonstrate simulator mission set-up and modification, map and aircraft slew functions, basic and advance modifications, malfunction insertion and removal, soft freeze/hard freeze, procedure monitor, auto voice, replay mode/video recording capability, and simulator instructional techniques.

Prerequisites. IUT-503

Ordnance. Any simulated ordnance loadout

External Syllabus Support. NA

SIUT-505 1.0 E WST/NWST/RWST S

Goal. Monitor brief/execution/debrief of an SNAV-90, 91 or 92 sortie.

Requirement. IP demonstrate proper brief/execution/debrief, simulator set-up and management techniques. IUT demonstrate thorough knowledge of NAV phase standards.

Prerequisites. SIUT-504, Read NAV Phase FSG, Monitor NAV Phase Brief and LAT 5 "Instructional Techniques" Lecture. Complete Nav Phase stan test.

Ordnance. NA

External Syllabus Support. NA

IUT-506 1.5 E 2 AV-8B A

Goal. IUT brief/chase/debrief a NAV-93 sortie IAW FSG standards. Sortie may be conducted in the front seat of a TAV-8B with a Phase Qualified IP in the rear seat, or in an AV-8B chasing a Phase Qualified IP.

Requirement. IUT plan sortie IAW FSG standards. IUT demonstrate proper briefing and debriefing techniques. IUT demonstrate ability to anticipate and prevent/correct common student errors. Serves as NAV Phase Instructor Qualification.

Prerequisites. SIUT-505

Ordnance. NA

External Syllabus Support. NA

IUT-507 1.5 E 2 T/AV-8B A

Goal. IUT brief/fly/debrief section TACFORM sortie; (one of FORM-70 through 74).

Requirement. IUT demonstrate proper brief/debrief. IUT demonstrate proper execution of section TACFORM sortie. IUT demonstrate proper in-flight instructional techniques. IUT demonstrate solid section flight leadership skills. IUT demonstrate thorough knowledge of TACFORM phase standards.

Prerequisites. Read TACFORM FSG, monitor TACFORM Phase Brief, GIUT-521

Ordnance. NA

External Syllabus Support. NA

IUT-508 1.5 E 4 T/AV-8B A

Goal. IUT monitor brief/execution/debrief division TACFORM sortie; FORM-75.

Requirement. IP demonstrate proper brief/debrief. IP demonstrate proper execution of division TACFORM sortie. IP demonstrate proper in-flight instructional techniques. IP demonstrate solid division flight leadership skills. IP demonstrate thorough knowledge of TACFORM phase standards.

Prerequisites. IUT-507

Ordnance. NA

External Syllabus Support. NA

IUT-509 1.5 E 4 T/AV-8B A

Goal. IUT brief/lead/debrief division TACFORM sortie; FORM-75.

Requirement. IUT demonstrate proper brief/debrief. IUT demonstrate proper execution of division TACFORM sortie. IUT demonstrate proper in-flight instructional techniques. IUT demonstrate solid division flight leadership skills and deconfliction plan. IUT demonstrate thorough knowledge of TACFORM phase standards.

Prerequisites. IUT 508 and completion of TACFORM Phase Stan Test

Ordnance. NA

External Syllabus Support. NA

SIUT-510 1.5 E WST/NWST/RWST S

Goal. Review IUT's knowledge of and ability to execute BCWD IAW published FSG standards; SAS-102 and 104

Requirement. IUT plan consolidated high/low angle sortie IAW FSG standards. IUT demonstrate proper briefing and debriefing techniques. IUT demonstrate ability to execute IAW FSG standards.

Prerequisites. Designated WTO, Read AS Phase FSG, Monitor AS Phase Briefs, Complete AS Phase Stan Test.

Ordnance. NA

External Syllabus Support. NA

SIUT-511 1.5 E WST/NWST/RWST S

Goal. Review IUT's knowledge of and ability to execute TCWD transition profiles and special weapons employment IAW published FSG standards; SAS-112, 115 and 116.

Requirement. IUT plan consolidated low and medium altitude transition maneuver sortie IAW FSG standards. IUT demonstrate proper briefing and debriefing techniques. IUT demonstrate ability to execute IAW FSG

Prerequisites. SIUT-510

Ordnance. NA

External Syllabus Support. NA

IUT-512 1.5 E 1 TAV-8B A

Goal. IUT brief/lead/debrief a low or high angle AS sortie from the rear seat of the TAV-8B with a phase qualified IP acting as the simulated student; AS-105 or 108. Serves as basic dive delivery AS instructor qualification.

Requirement. IUT plan sortie IAW FSG standards. IUT demonstrate proper briefing and debriefing techniques. IUT demonstrate ability to instruct IAW FSG standards.

Prerequisites. SIUT-511

Ordnance. Any simulated ordnance loadout

External Syllabus Support. NA

IUT-513 1.5 E 2 T/AV-8B A

Goal. IUT brief/lead/debrief a low or medium altitude target area mechanics sortie with AS qualified IP; AS-118, 120 or 121.

Serves as Advanced AS Phase instructor qualification.

Requirement. IUT demonstrate proper brief/debrief. IUT demonstrate thorough knowledge of AS phase standards, proper execution of low or medium altitude section target area mechanics, proper in-flight instructional techniques and solid section flight leadership skills.

Prerequisites. IUT-512
Ordnance. 6 Mk-76
External Syllabus Support. NA

SIUT-514 1.5 E WST/NWST/RWST S

Goal. IUT monitor brief/debrief of an Aerial Interdiction Simulator; SAI-130 or 131.

Requirement. IUT monitor conduct of Aerial Interdiction sortie IAW FSG standards.

Prerequisites. Advanced AS Phase Instructor
Ordnance. Any simulated ordnance loadout
External Syllabus Support. NA

SIUT-515 1.5 E WST/NWST/RWST S

Goal. IUT monitor brief/execution/debrief of a Medium Altitude CAS simulator; SCAS-140.

Requirement. IUT monitor conduct of Medium Altitude CAS sortie IAW FSG standards.

Prerequisites. SIUT-513, GIUT-518
Ordnance. NA
External Syllabus Support. NA

IUT-516 1.5 E 2 AV-8B A

Goal. IUT brief/lead/debrief a Medium Altitude Armed Reconnaissance sortie; AR-136.

Requirement. IUT conduct of Medium Altitude Armed Reconnaissance sortie IAW FSG standards.

Prerequisites. SIUT-515
Ordnance. NA
External Syllabus Support. NA

IUT-517 1.5 E 2 AV-8B A

Goal. Brief/lead/debrief a Medium Altitude Close Air Support SCAR (A); CAS-142, 143 or 144.

Requirement. IUT conduct of Medium Altitude Close Air Support FAC (A) role IAW FSG standards.

Prerequisites. SIUT-515
Ordnance. NA
External Syllabus Support. NA

IUT-519 1.5 E 2 T/AV-8B A

Goal. IUT monitor brief/debrief and fly rear seat of lead for night formation; FORM-76.

Requirement. IP demonstrate proper Brief/brief. IUT demonstrate thorough knowledge of Night Form phase standards.

Prerequisites. FIUT-509
Ordnance. NA
External Syllabus Support. NA

IUT-520 1.5 E 2 T/AV-8B A

Goal. IUT brief/lead/debrief night formation sortie under supervision of qualified night form phase IP; FORM-76. Serves as night section formation qualification.

Requirement. IUT demonstrate proper execution of a night formation sortie. IUT demonstrate proper in-flight instructional techniques. IUT demonstrate solid section flight leadership skills. IUT demonstrate thorough knowledge of FORM phase standards.

Prerequisites. IUT-519
Ordnance. NA
External Syllabus Support. NA

IUT-522 1.5 E 1 TAV-8B A

Goal. IUT brief/instruct/debrief a simulated student in FAM phase maneuvers IAW published FSG standards.

Requirement. IP plan sortie IAW FSG standards. IP demonstrate proper flight instructional techniques. IUT demonstrate proper brief and debrief skills. IUT introduced to common student errors.

Prerequisites. GIUT-521.
Ordnance. NA
External Syllabus Support. NA

IUT-523 1.5 E 1 TAV-8B A

Goal. IUT brief/instruct/debrief a simulated student in FAM phase maneuvers IAW published FSG standards.

Requirement. IUT / IP plan sortie IAW FSG standards. IUT demonstrate proper briefing and debriefing techniques. IUT demonstrate proper instructional techniques. IUT control sortie conduct, anticipating and preventing/correcting common student errors.

Prerequisites. IUT-522
Ordnance. NA
External Syllabus Support. NA

IUT-524 1.5 E 1 TAV-8B A

Goal. IUT brief/instruct/debrief a simulated student in FAM phase maneuvers IAW published FSG standards. Serves as late stage FAM instructor qualification.

Requirement. IUT / IP plan sortie IAW FSG standards. IUT demonstrate proper briefing and debriefing techniques. IUT demonstrate proper instructional techniques. IUT control sortie conduct, anticipating and preventing/correcting common student errors.

Prerequisites. IUT-523
Ordnance. NA
External Syllabus Support. NA

SIUT-525 1.5 E WST/NWST/RWST S

Goal. IUT monitor brief/execution/debrief an instrument simulator sortie; SINST-40, 41 or 42.

Requirement. IP demonstrate proper brief/execution/debrief. IP demonstrate simulator set-up and management techniques. IUT demonstrate thorough knowledge of INST phase standards.

Prerequisites. Read INST Phase FSG, Monitor INST Phase Brief and Late Stage FAM Instructor.

Ordnance. NA

External Syllabus Support. NA

IUT-526 1.5 E 1 TAV-8B A

Goal. IUT brief/execution/debrief INST phase sortie from the rear seat of the TAV-8B with IP flying the front seat as "simulated student" IAW FSG standards; INST-43 or 44. Serves as INST phase instructor qualification.

Requirement. IUT/IP plan sortie IAW FSG standards. IUT demonstrate proper briefing and debriefing techniques. IUT demonstrate ability to anticipate and prevent/correct common student errors.

Prerequisites. SIUT-525 and completion of INST Phase Stan examination

Ordnance. NA

External Syllabus Support. NA

SIUT-527 1.5 E WST/NWST/RWST S

Goal. IUT monitor brief/execution/debrief of an FBO simulator sortie; SFBO-50 or 51. Serves as TAV-8B FBO rear seat instructor qualification.

Requirement. IP demonstrate proper brief/execution/debrief. IP demonstrate simulator set-up and management techniques. IUT demonstrate thorough knowledge of FBO phase standards.

Prerequisites. Read FBO Phase FSG, Monitor FBO Phase Brief, Complete FBO Phase Stan Test, Designated late stage FAM instructor pilot and FRS LSS

Ordnance. NA

External Syllabus Support. NA

SIUT-528 1.5 E WST/NWST/RWST S

Goal. IUT monitor brief/execution/debrief of the introductory BFM simulator sortie; SBFM-150.

Requirement. CSI demonstrate proper brief/execution/debrief. CSI demonstrate simulator set-up and management techniques. IUT demonstrate thorough knowledge of AA phase standards.

Prerequisites. Read AA Phase FSG, Monitor AA Phase Brief, GIUT-531, complete AA Phase Stan Test and designated ACTI.

Ordnance. NA

External Syllabus Support. NA

SIUT-529 1.5 E WST/NWST/RWST S

Goal. IUT monitor brief/execution/debrief of TVC drill Simulator; SBFM-151.

Requirement. IP demonstrate proper brief/execution/debrief. IP demonstrate simulator set-up and management techniques. IUT demonstrate thorough knowledge of AA phase standards.

Prerequisites. SIUT-528
Ordnance. NA
External Syllabus Support. NA

IUT-530 1.5 E 1 TAV-8B A

Goal. IUT monitor brief/debrief and fly rear seat of lead for introductory TVC & handling drill sortie; BFM-153.

Requirement. IP demonstrate proper brief/debrief. IP demonstrate proper in-flight instructional techniques. IP demonstrate proper execution of the introductory TVC and handling drill sortie. IUT demonstrate thorough knowledge of AA phase standards.

Prerequisites. SIUT-529
Ordnance. NA
External Syllabus Support. NA

IUT-533 1.5 E 2 AV-8B A

Goal. IUT brief/lead/debrief a neutral start BFM sortie with an AA phase qualified IP; BFM-156.

Requirement. IP demonstrate proper brief, debrief and knowledge of AA phase standards. Demonstrate proper in-flight instructional technique and execution of neutral start BFM .

Prerequisites. GIUT-531
Ordnance. CAIM
External Syllabus Support. NA

IUT-534 1.5 E 3 AV-8B A

Goal. Brief/lead/debrief a 2v1 BFM sortie with AA phase qualified IP; BFM-157 or 58. Serves as AA Phase Instructor.

Requirement. IUT demonstrate proper brief/debrief. IUT demonstrate thorough knowledge of AA phase standards. IUT demonstrate proper execution of 2v1 BFM. IUT demonstrate proper in-flight instructional techniques. IUT demonstrate solid division flight leadership skills.

Prerequisites. IUT-533, GIUT-532
Ordnance. NA
External Syllabus Support. NA

SIUT-536 1.5 E WST/NWST/RWST S

Goal. IUT monitor brief/execution/debrief for early stage Familiarization simulator; SFAM-008 through 012.

Requirement. IP demonstrate proper brief/execution/debrief. IP demonstrate simulator set-up and management techniques. IUT demonstrate thorough knowledge of FAM phase standards.

Prerequisites. IUT-524

Ordnance. NA
External Syllabus Support. NA

SIUT-538 1.5 E WST/NWST/RWST S

Goal. IP demonstrate proper brief/debrief techniques. IUT flies 3D LAT simulator with threat reaction and target attacks to demonstrate proficiency; SLAT-81.

Requirement. IP demonstrate proper brief/debrief. IP demonstrate simulator set-up and management techniques. IUT demonstrate proper execution and thorough knowledge of all procedures for a 3D LAT simulator IAW FSG, LAT Lectures and SOP, LAT Rules of Conduct and T&R Manual, Administrative.

Prerequisites. Designated LATI and Early Stage FAM. Read LAT FSG, Monitor MAWTS-1 LAT 1-5 Lectures, LAT Phase Brief & complete LAT Phase Stan Examination.

Ordnance. NA
External Syllabus Support. NA

IUT-539 1.5 E 2 AV-8B A

Goal. IUT brief/chase/debrief a 3D LAT sortie; LAT-84. Serves as an FRS LAT Phase Instructor Qualification.

Requirement. IUT demonstrate proper execution and thorough knowledge of all procedures for instructing 3D LAT IAW FSG, LAT Lectures and SOP, LAT Rules of Conduct and T&R Manual, Administrative.

Prerequisites. SIUT-538
Ordnance. NA
External Syllabus Support. NA

SIUT-540 1.5 E WST/NWST/RWST S

Goal. IP brief/lead/debrief simulator EW sortie; SEW-125.

Requirement. IUT demonstrate proper execution and thorough knowledge of all procedures for a SEW IAW FSG.

Prerequisites. Read EW / Strike phase FSG, monitor EW / Strike Phase Brief, EW Suite & TCT. Take EW / Strike Phase Stan examination.

Ordnance. NA
External Syllabus Support. NA

SIUT-543 1.5 E NWST/RWST S

Goal. IUT monitor brief/execution/debrief of simulator Night Systems FAM; SNS-170.

Requirement. IUT introduced to Night Systems Familiarization brief / debrief procedures and sortie conduct.

Prerequisites. Read NS Phase of FSG, Night Lab current, monitor NS Phase Lectures, complete NS Phase Stan exam. NSQ, 25 NVD hrs in type, Early Stage FAM qualified.

Ordnance. NA
External Syllabus Support. NA

IUT-544 1.5 E 1 TAV-8B A

Goal. IUT monitor brief/execution/debrief of Night Systems sortie in the TAV-8B. IUT flies in rear cockpit; NS-172.

Requirement. IUT introduced to Night Systems Familiarization Brief / Execution / Debrief procedures and sortie conduct in TAV-8B aircraft.

Prerequisites. IUT-543.

Ordnance. NA

External Syllabus Support. NA

IUT-546 1.5 E 2 AV-8B A

Goal. Night Systems Familiarization Instructor

Requirement. IUT brief/lead/debrief a combination NS formation and navigation sortie. Evaluate IUT ability to instruct Night Systems. Upon successful completion IUT can be designated a NSFAM(I).

Prerequisites. IUT-544

Ordnance. NA

External Syllabus Support. NA

SIUT-547 1.5 E WST/NWST/RWST S

Goal. IUT fly NATOPS Check with Program/Model manager; SNATOPS-190.

Requirement. IP demonstrate proper brief/debrief. IP demonstrate simulator set-up and management techniques. IUT demonstrate proper execution and thorough knowledge of NATOPS check standards.

Prerequisites. Early Stage FRS Familiarization Instructor.

Ordnance. NA

External Syllabus Support. NA

151. MAWTS Certifications

a. Purpose. Standardized instructor certification evaluated by MAWTS-1 instructors for high risk training regimes.

b. General. All certification sorties will be conducted in accordance with the MAWTS-1 course catalog. The Commanding Officer of MAWTS-1 must approve any deviations from the published syllabus.

c. Ground/Academic Training. Reference the MAWTS-1 Course catalog and ASP.

d. Simulator / Flight Event Training (20 Events, 20.1 Hours)

SWTO-550 1.0 E WST/NWST/RWST S

Goal. WTO certification sortie.

Requirement. See MAWTS-1 course catalog.

SWTO-551 1.0 E WST/NWST/RWST S

Goal. WTO certification sortie.

Requirement. See MAWTS-1 course catalog.

SWTO-552 1.0 E WST/NWST/RWST S

Goal. WTO certification sortie.
Requirement. See MAWTS-1 course catalog.

SWTO-553	1.0	E	WST/NWST/RWST	S

Goal. WTO certification sortie.
Requirement. See MAWTS-1 course catalog.

WTO-554	1.0	E	2 AV-8B	A

Goal. WTO certification sortie.
Requirement. See MAWTS-1 course catalog.

WTO-555	1.0	E	2 AV-8B	A

Goal. WTO certification sortie.
Requirement. See MAWTS-1 course catalog.

SLATI-560	1.0	E	WST/NWST/RWST	S

Goal. LATI Certification Sortie.
Requirement. See MAWTS-1 course catalog.

SLATI-561	1.0	E	WST/NWST/RWST	S

Goal. LATI Certification Sortie.
Requirement. See MAWTS-1 course catalog.

LATI-562	1.0	E	2 AV-8B	A

Goal. LATI Certification Sortie.
Requirement. See MAWTS-1 course catalog.

LATI-563	1.0	E	2 AV-8B	A

Goal. LATI Certification Sortie.
Requirement. See MAWTS-1 course catalog.

LATI-564	1.0	E	2 AV-8B	A

Goal. LATI Certification Sortie.
Requirement. See MAWTS-1 course catalog.

SACTI-570	1.0	E	WST/NWST/RWST	S

Goal. ACTI certification sortie.
Requirement. See MAWTS-1 course catalog.

ACTI-571	1.0	E	2 AV-8B	A

Goal. ACTI certification sortie.
Requirement. See MAWTS-1 course catalog.

ACTI-572	1.0	E	2 AV-8B	A

Goal. ACTI certification sortie.
Requirement. See MAWTS-1 course catalog.

ACTI-573	1.0	E	2 AV-8B	A

Goal. ACTI certification sortie.
Requirement. See MAWTS-1 course catalog.

NSI-582	1.0	E	2 AV-8B	A NS

Goal. NSI certification flight.

Requirement. See MAWTS-1 course catalog.

NSI-583 1.0 E 2 AV-8B A NS

Goal. NSI certification flight.
Requirement. See MAWTS-1 course catalog.

150. REQUIREMENTS, QUALIFICATIONS, AND DESIGNATIONS

1. Requirements

a. Purpose. To track requirements as outlined in the AV-8B NATOPS flight manual and OPNAVINST 3710.7.

b. General. This section enables squadrons to document and track annual NATOPS and instrument evaluations.

c. Ground/Academic Training. Reference OPNAVINST 3710.7 and the AV-8B NATOPS Flight Manual.

d. Simulator / Flight Event Training. (2 Events, 3.0 Hours)

REQ-600 1.5 E Tracking S/A

Goal. Complete annual NATOPS evaluation.
Requirement. Perform annual NATOPS check per AV-8b NATOPS and OPNAVINST 3710.
Prerequisites. NA
Ordnance. NA
Performance Standards. Per AV-8B NATOPS and OPNAVINST 3710.
External Syllabus Support. NA

REQ-601 1.5 E Tracking S/A

Goal. Compete annual instrument evaluation.
Requirement. Perform annual instrument check per OPNAVINST 3710.
Prerequisites. NA
Ordnance. NA
Performance Standards. Per OPNAVINST 3710.
External Syllabus Support. NA

2. Qualifications

a. Purpose. Qualification codes delineate satisfactory completion of all academic, simulator, and flight requirements for individual flight qualifications. Reference the appropriate 200, 300 or 400 level syllabus for specific requirements.

b. General. This section enables squadrons to document completion of flight qualifications. Qualification codes do not constitute flight or simulator events in themselves, rather they will be logged upon completion of the appropriate 200, 300 or 400 level syllabus per the prerequisites listed below. Subsequent re-flight of sorties requiring the qualification will automatically update these qualification codes. If proficiency is not maintained in at least one of the prerequisite codes, then qualification will have to be regained by flying the appropriate “R” coded sorties.

c. Ground/Academic Training. Per the appropriate 200, 300 or 400 level syllabus.

d. Simulator / Flight Event Training. None.

QUAL-610 0.0 Tracking

Goal. Complete day LAT qualification.
Requirement. Satisfactory completion of day LAT qualification syllabus.
Prerequisites. SLAT-220 thru SLAT-222, LAT-223 thru LAT-227
Ordnance. NA
Performance Standards. Per syllabus description.
External Syllabus Support. NA

QUAL-611 0.0 Tracking

Goal. Complete day CQ qualification.
Requirement. Satisfactory completion of day CQ qualification syllabus.
Prerequisites. CQ-298
Ordnance. NA
Performance Standards. Per syllabus description.
External Syllabus Support. NA

QUAL-612 0.0 Tracking

Goal. Complete night CQ qualification
Requirement. Satisfactory completion of night CQ qualification syllabus.
Prerequisites. CQ-396, CQ-397
Ordnance. NA
Performance Standards. Per syllabus description.
External Syllabus Support. NA

QUAL-613 0.0 Tracking

Goal. Complete ACM qualification.
Requirement. Satisfactory completion of ACM qualification syllabus.
Prerequisites. SBFM-270, BFM-271 thru BFM-274, SACM-275 thru SACM-282, ACM-283 thru ACM-286
Ordnance. NA
Performance Standards. Per syllabus description.
External Syllabus Support. NA

QUAL-614 0.0 Tracking

Goal. Complete NS High qualification.
Requirement. Satisfactory completion of NS High qualification syllabus.
Prerequisites. SNS-230 thru SNS-231, NS-232 thru NS-235
Ordnance. NA
Performance Standards. Per syllabus description.

External Syllabus Support. NA

QUAL-615 0.0 Tracking

Goal. Complete NS Low qualification.
Requirement. Satisfactory completion of NS Low qualification syllabus.
Prerequisites. SNS-420 thru SNS-421, NS-422 thru NS-425
Ordnance. NA
Performance Standards. Per syllabus description.
External Syllabus Support. NA

QUAL-616 0.0 Tracking

Goal. Complete Litening Pod qualification.
Requirement. Satisfactory completion of Litening Pod qualification syllabus.
Prerequisites. SPT-310, SPT-311, PT-312 thru 317
Ordnance. NA
Performance Standards. Per syllabus description.
External Syllabus Support. NA

QUAL-617 0.0 Tracking

Goal. Complete CRM qualification.
Requirement. Satisfactory completion of CRM qualification requirements.
Prerequisites. NA
Ordnance. NA
Performance Standards.
External Syllabus Support. NA

QUAL-618 0.0 Tracking

Goal. Demo Pilot Qualification.
Requirement. Satisfactory completion of Demo pilot qualification requirements.
Prerequisites. NA
Ordnance. NA
Performance Standards.
External Syllabus Support. NA

3. Core Skill Complete

a. Purpose. To track the completion of academic, simulator and flight training in core skills.

b. General. This section enables squadrons to document and track via SARA completion of a pilots training in each core skill. CSC codes do not constitute flight or simulator event in themselves, rather they will be logged concurrent with another code, following completion of the set of T&R codes applying to that Core Skill, as defined in paragraph 100.7. SARA will update CSC codes whenever a flight event in that core skill has been completed. CSC codes will expire when Core Skill proficiency is lost (i.e., every T&R code in that skill area has exceeded its required refly interval). If proficiency in any Core Skill area is lost, the pilot will be required to flying the applicable refresher events in that skill area. When this has been done, the pilot should once again log the appropriate CSC to indicate

that proficiency has been regained.

c. Ground/Academic Training. Per the appropriate 200, 300 or 400 level syllabus.

d. Simulator / Flight Event Training. None.

CSC-620 0.0 Tracking

Goal. AAR core skill complete.
Requirement. Satisfactory completion of AAR core skill sorties.
Prerequisites. AAR-204, AAR-205

CSC-621 0.0 Tracking

Goal. EW core skill complete.
Requirement. Satisfactory completion of EW core skill sorties.
Prerequisites. SEW-206

CSC-622 0.0 Tracking

Goal. AS core skill complete.
Requirement. Satisfactory completion of AS core skill sorties.
Prerequisites. AS-213 thru AS-215

CSC-623 0.0 Tracking

Goal. LAT core skill complete.
Requirement. Satisfactory completion of LAT core skill sorties.
Prerequisites. LAT-223 thru LAT-227

CSC-624 0.0 Tracking

Goal. NS High core skill complete.
Requirement. Satisfactory completion of NS High core skill sorties.
Prerequisites. NS-232 thru NS-235

CSC-625 0.0 Tracking

Goal. AI core skill complete.
Requirement. Satisfactory completion of AI core skill sorties.
Prerequisites. AI-241 thru AI-243

CSC-626 0.0 Tracking

Goal. AR core skill complete.
Requirement. Satisfactory completion of AR core skill sorties.
Prerequisites. AR-246, AR-247

CSC-627 0.0 Tracking

Goal. CAS core skill complete.
Requirement. Satisfactory completion of CAS core skill

sorties.

Prerequisites. CAS-253 thru CAS-255

CSC-628 0.0 Tracking

Goal. ASE core skill complete.

Requirement. Satisfactory completion of ASE core skill sorties.

Prerequisites. ASE-260, ASE-360

CSC-629 0.0 Tracking

Goal. BFM core skill complete.

Requirement. Satisfactory completion of BFM core skill sorties.

Prerequisites. BFM-271 thru BFM-274

CSC-630 0.0 Tracking

Goal. ACM core skill complete.

Requirement. Satisfactory completion of ACM core skill sorties.

Prerequisites. ACM-283 thru ACM-286

CSC-631 0.0 Tracking

Goal. FBO core skill complete.

Requirement. Satisfactory completion of FBO core skill sorties.

Prerequisites. FBO-292, FBO-293

CSC-632 0.0 Tracking

Goal. FCLP (Day) core skill complete.

Requirement. Satisfactory completion of day FCLP core skill sorties.

Prerequisites. FCLP-296

CSC-633 0.0 Tracking

Goal. FCLP (Night) core skill complete.

Requirement. Satisfactory completion of night FCLP core skill sorties.

Prerequisites. FCLP-393

CSC-634 0.0 Tracking

Goal. CQ (Day) core skill complete.

Requirement. Satisfactory completion of day CQ core skill sorties.

Prerequisites. CQ-298

CSC-635 0.0 Tracking

Goal. CQ (Night) core skill complete.

Requirement. Satisfactory completion of night CQ core skill sorties.

Prerequisites. CQ-397

CSC-636 0.0 Tracking

Goal. PT core skill complete.

Requirement. Satisfactory completion of PT core skill sorties.

Prerequisites. PT-312 thru PT-317

CSC-637 0.0 Tracking

Goal. NS Low core skill complete.

Requirement. Satisfactory completion of NS Low core skill sorties.

Prerequisites. NS-422 thru NS-425

CSC-638 0.0 Tracking

Goal. SCAR core skill complete.

Requirement. Satisfactory completion of SCAR core skill sorties.

Prerequisites. SCAR-490, SCAR-491

4. Workup and Designation

a. Purpose. To track the workup and designation of flight leaders and instructors.

b. General. This section enables squadrons to document and track via SARA the workup and designation of pilots as flight leaders and instructors. All work-up codes for a specific designation must be complete prior to the flight lead evaluation/designation sortie. The following additional guidance applies:

(1) A pilot must complete the 200 and 300 level syllabus prior to beginning his section lead work-up.

(2) At least one section lead work-up sortie must be flown with the Litening II Pod and at least one sortie must be flown at night to include night AAR.

(3) The intent of the ACMFL designation is for a pilot to complete all section lead work-up sorties and earn the ACMFL designation concurrent with section lead. If circumstances do not allow, the ACMFL syllabus may be completed separately, after successful completion of the section lead syllabus.

(4) Successful completion of all appropriate certification or work-up codes and designation by the squadron commander are required prior to exercising any designation.

c. Ground/Academic Training. Per MAWTS-1 Course Catalog.

d. Simulator / Flight Event Training (26 Events, 19.0 Hours)

DESIG-641 1.0 E 2 AV-8B A

Goal. Section lead workup sortie (CAS 254).

Requirement. Lead a low altitude CAS sortie.

Prerequisites. Per sortie description and the guidance above.

Ordnance. Per sortie description.

Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

DESIG-642 1.0 E 2 AV-8B A

Goal. Section lead workup sortie (CAS 253/255).
Requirement. Lead a day or night medium altitude CAS sortie.
Prerequisites. Per sortie description and the guidance above.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

DESIG-643 1.0 E 2 AV-8B A

Goal. Section lead workup sortie (AR 246/247).
Requirement. Lead a day or night medium altitude AR sortie.
Prerequisites. Per sortie description and the guidance above.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

DESIG-644 1.0 E 2 AV-8B A

Goal. Section lead workup sortie (AI 442).
Requirement. Lead a section within a division on a medium altitude AI sortie.
Prerequisites. Per sortie description and the guidance above.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

DESIG-645 1.0 E 2 AV-8B A

Goal. Section lead workup sortie (AI 342).
Requirement. Lead an opposed section AI sortie.
Prerequisites. Per sortie description and the guidance above.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

DESIG-646 1.0 E 2 AV-8B A

Goal. Section lead workup sortie (ASE 260/360).
Requirement. Lead a day or night ASE sortie.
Prerequisites. Per sortie description and the guidance above.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

DESIG-647 1.0 E 2 AV-8B A

Goal. Section lead workup sortie (BFM 273).

Requirement. Lead a 1v1 BFM sortie.

Prerequisites. Per sortie description and the guidance above.

Ordnance. Per sortie description.

Performance Standards. Per sortie description. Emphasis should be on safe execution and adherence to training rules.

External Syllabus Support. Per sortie description.

DESIG-648 1.0 E 2 AV-8B A

Goal. Section lead workup sortie (BFM 274).

Requirement. Lead a 2v1 BFM sortie.

Prerequisites. Per sortie description and the guidance above.

Ordnance. Per sortie description.

Performance Standards. Per sortie description. Emphasis should be on safe execution and adherence to training rules.

External Syllabus Support. Per sortie description.

DESIG-649 1.0 E 2 AV-8B A

Goal. Section lead workup sortie (ACM 284).

Requirement. Lead a 2v1 ACM sortie.

Prerequisites. Per sortie description and the guidance above.

Ordnance. Per sortie description.

Performance Standards. Per sortie description. Emphasis should be on safe execution and adherence to training rules.

External Syllabus Support. Per sortie description.

DESIG-650 1.0 E 2 AV-8B A

Goal. Section lead workup sortie (ACM 286).

Requirement. Lead a 2v2 point defense sortie.

Prerequisites. Per sortie description and the guidance above.

Ordnance. Per sortie description.

Performance Standards. Per sortie description. Emphasis should be on safe execution and adherence to training rules.

External Syllabus Support. Per sortie description.

DESIG-651 1.0 E 2 AV-8B A

Goal. Section lead designation sortie (WU 641-646 flown as SL).

Requirement. Lead the assigned sortie as the section lead check ride.

Prerequisites. Per sortie description and the guidance above.

Ordnance. Per sortie description.

Performance Standards. Per sortie description.

External Syllabus Support. Per sortie description.

DESIG-652 0.0 E Tracking

Goal. ACFML designation.
Requirement. Satisfactory completion of WU 647-650.
Prerequisites. NA
Ordnance. NA
Performance Standards. NA
External Syllabus Support. NA

DESIG-653 1.0 E 4 AV-8B A

Goal. Division lead workup sortie (AI 443).
Requirement. Lead a division low altitude AI sortie.
Prerequisites. Per sortie description and the guidance above.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

DESIG-654 1.0 E 4 AV-8B A

Goal. Division lead workup sortie (AS 343/344).
Requirement. Lead a day or night division target area mechanics sortie.
Prerequisites. Per sortie description and the guidance above.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

DESIG-655 1.0 E 4 AV-8B A

Goal. Division lead workup sortie (AR 444).
Requirement. Lead a day or night division AR sortie. The Litening Pod should be incorporated into the mission.
Prerequisites. Per sortie description and the guidance above.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description. Laser capable range required.

DESIG-656 1.0 E 4 AV-8B A

Goal. Division lead designation sortie (AI 445).
Requirement. Lead an opposed division AI sortie as the division lead check ride.
Prerequisites. Per sortie description and the guidance above.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

DESIG-657 1.0 E 4 AV-8B A

Goal. Mission commander designation sortie (LFE

Requirement. Lead a day or night large force strike as the mission commander.

Prerequisites. Per sortie description and the guidance above.

Ordnance. Per sortie description.

Performance Standards. Per sortie description.

External Syllabus Support. Per sortie description.

DESIG-660 0.0 Tracking

Goal. WTO designation.

Requirement. Complete WTO certification syllabus in accordance with the MAWTS 1 Course Catalog.

Prerequisites. IAW MAWTS 1 Course Catalog

Ordnance. NA

Performance Standards. IAW MAWTS 1 Course Catalog

External Syllabus Support. NA

DESIG-661 0.0 Tracking

Goal. LATI designation.

Requirement. Complete LATI certification syllabus in accordance with the MAWTS 1 Course Catalog.

Prerequisites. IAW MAWTS 1 Course Catalog

Ordnance. NA

Performance Standards. IAW MAWTS 1 Course Catalog

External Syllabus Support. NA

DESIG-662 0.0 Tracking

Goal. NSI designation.

Requirement. Complete NSI certification syllabus in accordance with the MAWTS 1 Course Catalog.

Prerequisites. IAW MAWTS 1 Course Catalog

Ordnance. NA

Performance Standards. IAW MAWTS 1 Course Catalog

External Syllabus Support. NA

DESIG-663 0.0 Tracking

Goal. ACTI designation.

Requirement. Complete ACTI certification syllabus in accordance with the MAWTS 1 Course Catalog.

Prerequisites. IAW MAWTS 1 Course Catalog

Ordnance. NA

Performance Standards. IAW MAWTS 1 Course Catalog

External Syllabus Support. NA

DESIG-664 0.0 Tracking

Goal. WTI designation.

Requirement. Complete MAWTS 1 WTI course of instruction in accordance with the MAWTS 1 Course Catalog.

Prerequisites. IAW MAWTS 1 Course Catalog

Ordnance. NA

Performance Standards. IAW MAWTS 1 Course Catalog

External Syllabus Support. NA

DESIG-665 0.0 Tracking

Goal. Track the legacy NSI (High) Qualification
Requirement. NSI (High) certification was completed IAW the program that existed at that time.
Prerequisites. IAW legacy MAWTS 1 Course Catalog
Ordnance. NA
Performance Standards. IAW legacy MAWTS 1 Course Catalog
External Syllabus Support. NA

DESIG-666 1.5 E WST/NWST/RWST S

Goal. Functional check flight workup sortie.
Requirement. Complete an FCF profile in the simulator.
Prerequisites. Per squadron SOP.
Ordnance. NA
Performance Standards. Profile completion per appropriate card.
External Syllabus Support. NA

DESIG-667 1.5 E 1 AV-8B A

Goal. Conduct a functional check flight evaluation.
Requirement. Complete an FCF profile in a FMC AV-8B.
Prerequisites. Per squadron SOP.
Ordnance. NA
Performance Standards. Profile completion per appropriate card.
External Syllabus Support. NA

5. Tracking

a. Purpose. Codes in this section enable squadrons to track currency in various evolutions via SARA.

b. General. This section enables squadrons to document and track pilot flight leadership roles in a flight, strategic tanking currency, weapons delivery, FBO day/night CAL and grass operations. Tracking codes do not constitute flight or simulator events in themselves, rather they will be logged concurrent with another code to delineate position in the flight, ordnance expended, or specifics of an event completed (i.e. FBO cal site operations).

c. Ground/Academic Training. NA.

d. Simulator / Flight Event Training. (1 Events, 1.5 Hours)

TRK-670 1.5 NWST/RWST S

Goal. Operational Flight Program (OFP) differences.
Requirement. Become familiar with the controls, displays and functionality of a newly released OFP.
Prerequisites. NA
Ordnance. NA
Performance Standards.
External Syllabus Support. NA

TRK-673 0.0 Tracking

Goal. Conduct strategic tanking.
Requirement. Conduct aerial refueling from a strategic tanking platform.
Prerequisites. AAR 204 (AAR 205 if at night)
Ordnance. NA
Performance Standards. As outlined in the Air Refueling NATOPS.
External Syllabus Support. Strategic tanker.

TRK-674 0.0 Tracking

Goal. Sortie flown as Section Leader.
Requirement. Fly sortie as a section leader.
Prerequisites. Per sortie description.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

TRK-675 0.0 Tracking

Goal. Sortie flown as Division Leader
Requirement. Fly sortie as a division leader.
Prerequisites. Per sortie description.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

TRK-676 0.0 Tracking

Goal. Sortie flown as Msn Cmdr
Requirement. Fly sortie as a mission commander.
Prerequisites. Per sortie description.
Ordnance. Per sortie description.
Performance Standards. Per sortie description.
External Syllabus Support. Per sortie description.

TRK-677 0.0 Tracking

Goal. Expend Mk-80 series HE ordnance.
Requirement. Tactically employ Mk-80 series HE ordnance.
Prerequisites. IAW tactical sortie of execution.
Ordnance. Mk-77
Performance Standards. Employ fuzed ordnance with a CEP < 12 mils about MPI.
External Syllabus Support. Impact area

TRK-678 0.0 Tracking

Goal. Fire GAU-12.
Requirement. Tactically employ GAU-12.
Prerequisites. IAW tactical sortie of execution.
Ordnance. 300 Rnds HE or TP
Performance Standards. Employ ordnance with a CEP < 12 mils about MPI and demonstrate proper safe escape
External Syllabus Support. Impact area

TRK-679 0.0 Tracking

Goal. Expend CBU-99/100 or Mk-20 ordnance.
Requirement. Tactically employ cluster munitions.
Prerequisites. IAW tactical sortie of execution.
Ordnance. CBU-99/100 or Mk-20
Performance Standards. Employ fuzed ordnance with a CEP < 12 mils about MPI.
External Syllabus Support. Impact area

TRK-680 0.0 Tracking

Goal. Expend Mk-77 fire bomb.
Requirement. Tactically employ Mk-77 fire bomb.
Prerequisites. IAW tactical sortie of execution.
Ordnance. Mk-77
Performance Standards. Employ fuzed ordnance with a CEP < 12 mils about MPI.
External Syllabus Support. Impact area

TRK-681 0.0 Tracking

Goal. Fire rockets (2.75" or 5").
Requirement. Tactically employ rockets.
Prerequisites. IAW tactical sortie of execution.
Ordnance. 2.75" or 5" Rockets
Performance Standards. Employ fuzed ordnance with a CEP < 12 mils about MPI and demonstrate proper safe escape maneuver.
External Syllabus Support. Impact area

TRK-682 0.0 Tracking

Goal. Expend LUU-2/LUU-19 parachute flares.
Requirement. Tactically employ LUU-2/19 parachute flares at night.
Prerequisites. IAW tactical sortie of execution.
Ordnance. LUU-2 or LUU-19
Performance Standards. Employ parachute flares to illuminate the battlefield for night ordnance delivery.
External Syllabus Support. Impact area

TRK-683 0.0 Tracking

Goal. Fire AGM-65E Laser Maverick.
Requirement. Tactically employ LMAV.
Prerequisites. IAW tactical sortie of execution.
Ordnance. AGM-65E
Performance Standards. Successfully employ LMAV on an appropriately marked target.
External Syllabus Support. Impact area

TRK-684 0.0 Tracking

Goal. Fire AGM-65F IR Maverick.
Requirement. Tactically employ IRMV.
Prerequisites. IAW tactical sortie of execution.

Ordnance. AGM-65F
Performance Standards. Successfully employ IRMV on a heated target.
External Syllabus Support. Impact area

TRK-685 0.0 Tracking

Goal. Expend GBU-12/16 laser guided munition.
Requirement. Tactically employ GBU 12/16 laser guided bomb.
Prerequisites. IAW tactical sortie of execution.
Ordnance. GBU-12 or GBU-16
Performance Standards. Successfully employ GBU 12/16 on an appropriately marked target.
External Syllabus Support. Impact area

TRK-686 0.0 Tracking

Goal. Expend JDAM.
Requirement. Tactically employ JDAM.
Prerequisites. IAW tactical sortie of execution.
Ordnance. JDAM
Performance Standards. Successfully employ JDAM.
External Syllabus Support. Impact area

TRK-687 0.0 Tracking

Goal. Fire AIM-9.
Requirement. Tactically employ AIM-9.
Prerequisites. IAW tactical sortie of execution.
Ordnance. AIM-9
Performance Standards. Successfully employ AIM-9 on a drone target or parachute flare.
External Syllabus Support. Drone or flare aircraft.

TRK-688 0.0 Tracking

Goal. Introduction to air-to-air gunnery.
Requirement. Fire the GAU-12 using the circular dart or banner pattern. VTR debrief required.
Prerequisites. IAW tactical sortie of execution.
Ordnance. 300 Rnds.
Performance Standards. A minimum of 4 passes on the respective target.
External Syllabus Support. Tow aircraft with

TRK-689 0.0 Tracking

Goal. Employ ALQ-164 DECM
Requirement. Tactically employ the ALQ-164 DECM pod.
Prerequisites. IAW tactical sortie of execution.
Ordnance. ALQ-164.
Performance Standards. Successfully employ the DECM pod on an EW range.
External Syllabus Support. EW Range.

TRK-690 0.0 Tracking

Goal. Introduce day CAL site operations.
Requirement. Practice precision V/STOL at a CAL site. Perform multiple precision VL's and VTO's under LSS control. Proficiency must be demonstrated prior to conducting other missions from a CAL site.
Prerequisites. FAM 201
Ordnance. NA
Performance Standards. A minimum of 4 takeoffs and landings are required.
External Syllabus Support. Approved CAL site

TRK-691 0.0 Tracking

Goal. Introduce night CAL site operations.
Requirement. Repeat TRK 690 at night.
Prerequisites. TRK 690
Ordnance. NA
Performance Standards. A minimum of 4 takeoffs and landings are required.
External Syllabus Support. Approved CAL site

TRK-692 0.0 Tracking

Goal. Introduce road operations.
Requirement. Practice precision V/STOL at a road. Perform multiple precision RVL's and maximum performance STO's under LSS control.
Prerequisites. FBO 292
Ordnance. NA
Performance Standards. A minimum of 4 takeoffs and landings are required.
External Syllabus Support. Approved road.

TRK-693 0.0 Tracking

Goal. Introduce night road operations.
Requirement. Practice precision V/STOL at a road. Perform multiple precision RVL's and maximum performance STO's under LSS control.
Prerequisites. TRK 692, FBO 293
Ordnance. NA
Performance Standards. A minimum of 4 takeoffs and landings are required.
External Syllabus Support. Approved road.

TRK-694 0.0 Tracking

Goal. Introduce grass operations
Requirement. Practice precision V/STOL at a grass strip. Perform multiple precision RVL's and maximum performance STO's under LSS control.
Prerequisites. FBO 292
Ordnance. NA
Performance Standards. A minimum of 4 takeoffs and landings are required.
External Syllabus Support. Approved grass strip.

6. LSO / LSS(I) Designation and Tracking

a. Purpose. To track the designation and currency of Landing Signal Officers (LSO), Landing Site Instructors (LSI) and Landing Sight Supervisors (LSS).

b. General. This section enables squadrons to document and track via SARA the designation of pilots as LSO's, LSI's and LSS's and currency intervals between "waiving" periods. The following additional guidance applies:

(1) A pilot must complete the 200 level syllabus prior to beginning any workup for LSO or LSS designation.

(2) The T&R Administrative Manual, AV-8B T&R Manual, LSO NATOPS Manual and MAG LSI/LSS orders define the prerequisites to start LSO/LSS/LSI Under Training syllabus and designation requirements. A pilot should be a designated section lead but this is waiverable by the Commanding Officer.

(4) Currency will be retained for 12 months following the last day a LSO/LSI/LSS control for each specific designation. If a LSO/LSI/LSS looses currency, the LSO/LSI/LSS shall attend the academic ground school and regain currency as outlined in the above documents. No minimum number of controls is required as long as proficiency is exhibited to the Training LSO/LSS.

(5) Successful completion of all appropriate work-up events and designation by the squadron commander are required prior to exercising any designation.

c. Ground/Academic Training. Per LSO NATOPS or MAG LSI/LSS Order.

DESIG-700 0.0 E Designation

Goal. Day Basic Field LSO.
Requirement. Per LSO NATOPS.
Prerequisites. Per LSO NATOPS
Ordnance. NA.
Performance Standards. Per LSO NATOPS.
External Syllabus Support. FCLP facility.

DESIG-701 0.0 E Designation

Goal. Night Basic Field LSO.
Requirement. Per LSO NATOPS.
Prerequisites. Per LSO NATOPS
Ordnance. NA.
Performance Standards. Per LSO NATOPS.
External Syllabus Support. FCLP facility.

DESIG-702 0.0 E Designation

Goal. Day Basic Ship.
Requirement. Per LSO NATOPS.
Prerequisites. Per LSO NATOPS
Ordnance. NA.
Performance Standards. Per LSO NATOPS.

External Syllabus Support. L-class ship.

DESIG-703 0.0 E Designation

Goal. Night Basic Ship.
Requirement. Per LSO NATOPS.
Prerequisites. Per LSO NATOPS
Ordnance. NA.
Performance Standards. Per LSO NATOPS.
External Syllabus Support. L-class ship.

DESIG-704 0.0 E Designation

Goal. Advanced Day LSO.
Requirement. Per LSO NATOPS.
Prerequisites. Per LSO NATOPS
Ordnance. NA.
Performance Standards. Per LSO NATOPS.
External Syllabus Support. FCLP facility and L-class ship.

DESIG-705 0.0 E Designation

Goal. Advanced Night LSO.
Requirement. Per LSO NATOPS.
Prerequisites. Per LSO NATOPS
Ordnance. NA.
Performance Standards. Per LSO NATOPS.
External Syllabus Support. FCLP facility and L-class ship.

DESIG-706 0.0 E Designation

Goal. Training Day LSO.
Requirement. Per LSO NATOPS.
Prerequisites. Per LSO NATOPS
Ordnance. NA.
Performance Standards. Per LSO NATOPS.
External Syllabus Support. FCLP facility and L-class ship.

DESIG-707 0.0 E Designation

Goal. Training Night LSO.
Requirement. Per LSO NATOPS.
Prerequisites. Per LSO NATOPS
Ordnance. NA.
Performance Standards. Per LSO NATOPS.
External Syllabus Support. FCLP facility and L-class ship.

DESIG-710 0.0 E Designation

Goal. Day Facility LSI.
Requirement. As Outlined in section 6 of this manual and MAG LSI/LSS Order.

Prerequisites. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
Ordnance. NA.
Performance Standards. As Outlined in section 6 f this manual and MAG LSI/LSS Order.
External Syllabus Support. Main Facility.

DESIG-711 0.0 E Designation

Goal. Night Facility LSI.
Requirement. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
Prerequisites. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
Ordnance. NA.
Performance Standards. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
External Syllabus Support. Main Facility.

DESIG-712 0.0 E Designation

Goal. Day Road LSS.
Requirement. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
Prerequisites. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
Ordnance. NA.
Performance Standards. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
External Syllabus Support. Road training facility or road base.

DESIG-713 0.0 E Designation

Goal. Night Road LSS.
Requirement. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
Prerequisites. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
Ordnance. NA.
Performance Standards. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
External Syllabus Support. Road training facility or road base.

DESIG-714 0.0 E Designation

Goal. Day CAL Site LSS.
Requirement. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
Prerequisites. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
Ordnance. NA.
Performance Standards. As Outlined in section 6 of this manual and MAG LSI/LSS Order.

External Syllabus Support. CAL Site.

DESIG-715 0.0 E Designation

Goal. Night CAL Site LSS.
Requirement. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
Prerequisites. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
Ordnance. NA.
Performance Standards. As Outlined in section 6 of this manual and MAG LSI/LSS Order.
External Syllabus Support. CAL Site.

7. LSO, LSI and LSS Tracking

a. Purpose. Codes in this section enable squadrons to track LSO, LSI and LSS currency in various evolutions via SARA.

b. General. NA.

c. Ground/Academic Training. NA.

c. Simulator / Flight Event Training. NA.

TRK-720 0.0 Tracking

Goal. Control Day FCLP LSO
Requirement. NA.
Prerequisites. CQ-298.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. FCLP facility.

TRK-721 0.0 Tracking

Goal. Control Night FCLP LSO
Requirement. NA.
Prerequisites. TRK-720, CQ-396.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. FCLP facility.

TRK-722 0.0 Tracking

Goal. Control Aided Night FCLP LSO
Requirement. NA.
Prerequisites. TRK-721, CQ-397.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. FCLP facility.

TRK-723 0.0 Tracking

Goal. Control Day Ship LSO
Requirement. NA.
Prerequisites. TRK-720.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. L-class ship.

TRK-724 0.0 Tracking

Goal. Control Night Ship LSO.
Requirement. NA.
Prerequisites. TRK-723, TRK-721.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. L-class ship.

TRK-725 0.0 Tracking

Goal. Control Night Aided Ship LSO.
Requirement. NA.
Prerequisites. TRK-724.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. L-class ship.

TRK-726 0.0 Tracking

Goal. Control Day Training LSO.
Requirement. NA.
Prerequisites. NA.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. FCLP facility or L-class ship.

TRK-727 0.0 Tracking

Goal. Control Night Training LSO.
Requirement. NA.
Prerequisites. NA.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. FCLP facility or L-class ship.

TRK-730 0.0 Tracking

Goal. Control Day LSI Facility.
Requirement. NA.
Prerequisites. FBO-292
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. Main operating facility.

TRK-731 0.0 Tracking

Goal. Control Night LSI Facility.
Requirement. NA.
Prerequisites. TRK-730, FBO-293.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. Main operating facility.

TRK-732 0.0 Tracking

Goal. Control Day LSS Road.
Requirement. NA.
Prerequisites. TRK-730, FBO-292.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. Road training site or road site.

TRK-733 0.0 Tracking

Goal. Control Night LSS Road.
Requirement. NA.
Prerequisites. TRK-731, TRK-732, FBO-293.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. Road training site or road site.

TRK-734 0.0 Tracking

Goal. Control Day LSS CAL Site.
Requirement. NA.
Prerequisites. TRK-732.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. CAL Site.

TRK-735 0.0 Tracking

Goal. Control Night LSS CAL Site.
Requirement. NA.
Prerequisites. TRK-734.
Ordnance. NA
Performance Standards. NA.
External Syllabus Support. CAL Site.

160. ORDNANCE REQUIREMENTS. Annual ordnance requirements are developed on a "per crew" basis per OPNAVNOTE 8010.+ However, the following paragraphs also delineate the minimum level of ordnance support necessary to ensure that a notional squadron can attain and maintain the required level of core skill proficiency for its pilots.

1. Fleet Replacement Squadron (47 RAC basis)

ORDNANCE	RAC	SPT	IUT	Sqdn Total
25 mm	300	0	0	14100
Mk-76	180	30	36	10230
Mk-82	4	0	0	188
BDU-45	8	0	0	360
Mk-83	0	0	0	0
Mk-83(I)	0	0	0	0
Mk-20/CBU-99/100	0	0	0	0
Mk-77	0	0	0	0
LUU-2	0	4	0	188
2.75″ Rkt	0	0	0	0
5.0″ Rkt	0	0	0	0
AGM-65E	0	0	0	0
AGM-65F	0	0	0	0
LGTR	2	0	0	94
GBU-12/16	0	0	0	0
JDAM	0	0	0	0
AIM-9	0	0	0	0
Self Protect Chaff	40	0	0	1840
Self Protect Flare	720	100	0	38540

Note: FRS ordnance requirements are based upon predicted steady-state throughput requirements and standard support/overhead factors per RAC equivalent.

2. Marine Attack Squadron

ORDNANCE	B/T	R	Sqdn Total
25 mm	1200	300	12000
Mk-76	96	36	1220
Mk-82	36	18	460
BDU-45	36	6	460
Mk-83	6	4	80
Mk-83(I)	6	24	80
Mk-20/CBU-99/100	4	4	50
Mk-77	4	4	50
LUU-2	16	0	80
2.75″ Rkt	20	16	420
5.0″ Rkt	20	16	420
AGM-65E	.33	.33	8
AGM-65F	.33	.33	8
LGTR	12	6	180
GBU-12/16	.33	.33	8
JDAM	.33	.33	8
AIM-9	.33	.33	8
Self Protect Chaff	540	220	7260
Self Protect Flare	1260	540	16940

Note: VMA ordnance requirements are based upon predicted input rates for

both basic and refresher pilots, plus core skill sustainment for remaining second-tour pilots.

COMBAT CAPABLE												
STAGE	CODE	HRS	SIM HRS	REFLY INT	CRP	T	C	R	M	E	CONDITION	# OF A/C
SFAM	001		1.5	*	0.1	X				X	S	
SFAM	002		1.5	*	0.1	X				X	S	
SFAM	003		1.5	*	0.1	X		X	X	X	S	
SFAM	004		1.5	*	0.1	X				X	S	
SFAM	005		1.5	*	0.1	X		X	X	X	S	
SFAM	006		2.0	*	0.1	X				X	S	
SFAM	007		2.0	*	0.1	X				X	S	
SFAM	008		2.0	*	0.1	X				X	S	
SFAM	009		2.0	*	0.1	X				X	S	
SFAM	010		2.0	*	0.1	X		X	X	X	S	
SFAM	011		1.5	*	0.1	X		X	X	X	S	
SFAM	012		1.5	*	0.1	X		X	X	X	S	
FAM	013	1.3		*	0.4	X				X	A	1
FAM	014	1.3		*	0.4	X		X	X	X	A	1
FAM	015	1.3		*	0.4	X				X	A	1
FAM	016	1.3		*	0.4	X		X	X	X	A	1
FAM	017	1.3		*	0.4	X				X	A	1
FAM	018	1.3		*	0.4	X				X	A	2
FAM	019	1.5		*	0.4	X				X	A	2
FAM	020	1.3		*	0.4	X		X		X	A	2
FAM	021	1.3		*	0.4	X				X	A	2
FAM	022	1.3		*	0.4	X				X	A	1
SFAM	023		1.5	*	0.1	X				X	S	
SFAM	024		2.0	*	0.1	X				X	S	
FAM	025	1.3		*	0.4	X		X	X	X	A	1
FAM	026	1.3		*	0.4	X		X	X	X	A	1
FAM	027	1.3		*	0.4	X				X	A	1
FAM	028	1.3		*	0.4	X				X	A	1
FAM	029	1.3		*	0.4	X				X	A	1
SFAM	030		1.5	*	0.1	X		X		X	S N	
FAM	031			*	0.4	X				X	A N	1
FAM	032			*	0.4	X				X	A N	1
FAM	033			*	0.4	X				X	A N	1
SINST	040		1.5	*	0.1	X				X	S	
SINST	041		1.5	*	0.1	X				X	S	
SINST	042		1.5	*	0.1	X			X	X	S	
INST	043	1.5		*	0.4	X				X	A (N)	1

Figure 2. – Refly Interval and Combat Readiness Percentage

COMBAT CAPABLE												
STAGE	**CODE**	**HRS**	**SIM HRS**	**REFLY INT**	**CRP**	**T**	**C**	**R**	**M**	**E**	**CONDITION**	**# OF A/C**
INST	044	1.5		*	0.4	X		X		X	A (N)	1
SINST	045		1.5	*	0.1	X		X	X	X	S	
SFBO	050		1.0	*	0.1	X				X	S	
FBO	051	0.8		*	0.2	X				X	A	1
FBO	052	1.0		*	0.4	X				X	A	1
SFCLP	060		0.8	*	0.1	X				X	S	
FCLP	061	1.0		*	0.4	X				X	A	1
FCLP	062	1.0		*	0.4	X				X	A	1
FCLP	063	1.0		*	0.4	X				X	A	1
FCLP	064	1.0		*	0.4	X				X	A	1
FCLP	065	1.0		*	0.4	X				X	A	1
FCLP	066	1.0		*	0.4	X				X	A	1
FCLP	067	1.0		*	0.4	X				X	A	1
FORM	070	1.3		*	0.4	X		X	X	X	A	2
FORM	071	1.3		*	0.4	X				X	A	2
FORM	072	1.3		*	0.4	X				X	A	2
FORM	073	1.3		*	0.4	X				X	A	2
FORM	074	1.3		*	0.4	X				X	A	2
FORM	075	1.3		*	0.4	X				X	A	4
FORM	076	1.3		*	0.4	X				X	A N	2
SLAT	080		1.5	*	0.1	X		X		X	S	
SLAT	081		1.5	*	0.1	X		X		X	S	
LAT	082	1.0		*	0.4	X				X	A	1
LAT	083	1.0		*	0.4	X				X	A	1
LAT	084	1.0		*	0.4	X				X	A	2
SNAV	090		1.5	*	0.1	X				X	S	
SNAV	091		1.5	*	0.1	X				X	S	
SNAV	092		1.5	*	0.1	X		X	X	X	S	
NAV	093	1.3		*	0.4	X				X	A	2
NAV	094	1.3		*	0.4	X		X	X	X	A	2
SAS	100		1.5	*	0.2	X				X	S	
SAS	101		1.5	*	0.2	X				X	S	
SAS	102		1.5	*	0.2	X		X	X	X	S	
SAS	103		1.5	*	0.2	X				X	S	
SAS	104		1.5	*	0.2	X		X	X	X	S	
AS	105	1.0		*	0.4	X		X	X	X	A	1
AS	106	1.0		*	0.4	X		X		X	A	2
AS	107	1.0		*	0.4	X				X	A	2

Figure 2. – Refly Interval and Combat Readiness Percentage

COMBAT CAPABLE												
STAGE	**CODE**	**HRS**	**SIM HRS**	**REFLY INT**	**CRP**	**T**	**C**	**R**	**M**	**E**	**CONDITION**	**# OF A/C**
AS	108	1.0		*	0.4	X				X	A	1
AS	109	1.0		*	0.4	X		X	X	X	A	2
SAS	110		1.5	*	0.1	X		X		X	S	
AS	111			*	0.4	X				X	A N	1
SAS	112		1.5	*	0.1	X		X		X	S	
AS	113	1.0		*	0.4	X				X	A	1
AS	114	1.0		*	0.4	X				X	A	2
SAS	115		1.5	*	0.1	X		X		X	S	
SAS	116		1.5	*	0.1	X				X	S	
AS	117	1.0		*	0.4	X				X	A	2
AS	118	1.0		*	0.4	X				X	A	2
AS	119	1.0		*	0.4	X		X		X	A	2
AS	120	1.0		*	0.4	X				X	A	2
AS	121	1.0		*	0.4	X				X	A	2
SEW SEW	125 126	 1.0	1.5	* *	0.2 0.1	X X				X X	S A	 2
SAI	130		1.5	*	0.1	X				X	S	
SAI	131		1.5	*	0.1	X				X	S	
AI	132	1.0		*	0.4	X				X	A	2
SAR	135		2.0	*	0.1	X				X	S	
AR	136	1.0		*	0.4	X				X	A	2
SCAS	140		1.5	*	0.1	X		X		X	S	
SCAS	141		1.5	*	0.1	X				X	S	
CAS	142	1.0		*	0.4	X				X	A	2
CAS	143	1.0		*	0.4	X				X	A	2
CAS	144	1.0		*	0.4	X				X	A	2
SBFM	150		1.5	*	0.1	X				X	S	
SBFM	151		1.5	*	0.1	X				X	S	
SBFM	152		1.5	*	0.1	X				X	S	
BFM	153	1.0		*	0.4	X				X	A	2
BFM	154	1.0		*	0.4	X				X	A	2
BFM	155	1.0		*	0.4	X				X	A	2
BFM	156	1.0		*	0.4	X				X	A	2
BFM	157	1.0		*	0.4	X				X	A	3
SAAR	160		1.5	*	0.1	X				X	S	
AAR	161	1.3		*	0.5	X				X	A	2
SNS	170		1.5	*	0.4	X		X		X	S NS	
SNS	171		1.5	*	0.4	X		X		X	S NS	

COMBAT CAPABLE												
STAGE	**CODE**	**HRS**	**SIM HRS**	**REFLY INT**	**CRP**	**T**	**C**	**R**	**M**	**E**	**CONDITION**	**# OF A/C**
NS	172	1.3		*	0.5	X		X		X	A NS	1
NS	173	1.3		*	0.5	X		X		X	A NS	2
NS	174	1.3		*	0.4	X				X	A NS	2
STRIKE	180	1.3		*	0.5	X				X	A	4
SRADAR	185		1.5	*	0.5	X				X	S	
SNATOPS	190		1.5	*	0.6	X		X	X	X	S	
SUB TOTAL 100		73.4	76.8		35.0							
CRP PRE 100					25.0							
100 LEVEL TOTAL		73.4	76.8		60.0							

Figure 2. – Refly Interval and Combat Readiness Percentage

COMBAT READY												
STAGE	**CODE**	**HRS**	**SIM HRS**	**REFLY INT**	**CRP**	**T**	**C**	**R**	**M**	**E**	**CONDITION**	**# OF A/C**
SFAM	200		1.5	*	0.0	X		X		X	S	
FAM	201	1.5		90	0.3	X		X			A	2
SINST	202		1.0	*	0.0	X					S	
SNAV	203		1.0	*	0.1	X					S	
AAR	204	1.0		365	0.3	X		X			A	2
AAR	205			365	0.3	X				X	A N	2
SEW	206		1.0	*	0.2	X		X			S	
SAS	210		1.0	*	0.1	X					S	
SAS	211		1.0	*	0.1	X					S	
SAS	212		1.0	*	0.1	X					S	
AS	213	1.0		60	0.3	X					A	2
AS	214	1.0		60	0.3	X		X			A	2
AS	215	1.0		60	0.3	X		X		X	A	2
SLAT	220		1.0	*	0.1	X				X	S	
SLAT	221		1.0	*	0.1	X		X			S	
SLAT	222		1.0	*	0.1	X					S	
LAT	223	1.0		180	0.3	X		X			A	2
LAT	224	1.0		180	0.3	X		X			A	2
LAT	225	1.0		180	0.3	X					A	2
LAT	226	1.0		180	0.3	X					A	2
LAT	227	1.0		180	0.3	X		X		X	A	2
SNS	230		1.0	*	0.1	X		X			S NS	
SNS	231		1.0	*	0.1	X		X			S NS	

COMBAT READY												
STAGE	CODE	HRS	SIM HRS	REFLY INT	CRP	T	C	R	M	E	CONDITION	# OF A/C
NS	232	1.5		90	0.4	X		X			A NS	2
NS	233	1.3		90	0.4	X					A NS	2
NS	234	1.0		90	0.4	X					A NS	2
NS	235	1.0		90	0.4	X		X		X	A NS	2
SAI	240		1.0	*	0.1	X					S	
AI	241	1.3		180	0.4	X					A	2
AI	242	1.0		180	0.4	X		X		X	A	2
AI	243	1.3		180	0.4	X				X	A NS	2
SAR	245		1.0	*	0.1	X					S	
AR	246	1.0		180	0.3	X		X			A	2
AR	247	1.0		180	0.4	X				X	A NS	2
SCAS	250		1.0	*	0.1	X		X			S	
SCAS	251		1.0	*	0.1	X					S	
SCAS	252		1.0	*	0.1	X					S NS	
CAS	253	1.0		180	0.4	X		X			A	2
CAS	254	1.0		180	0.4	X					A	2
CAS	255	1.0		180	0.4	X		X		X	A NS	2
ASE	260	1.3		365	0.3	X		X		X	A	2
SBFM	270		1.0	*	0.1	X					S	
BFM	271	1.0		180	0.2	X					A	2
BFM	272	1.0		180	0.2	X					A	2
BFM	273	1.0		180	0.3	X		X			A	2
BFM	274	1.0		180	0.3	X				X	A	2
SACM	275		1.0	*	0.1	X					S	
SACM	276		1.0	*	0.1	X					S	
SACM	277		1.0	*	0.1	X					S	
SACM	278		1.0	*	0.1	X					S	
SACM	279		1.0	*	0.1	X					S	
SACM	280		1.0	*	0.1	X					S	
SACM	281		1.0	*	0.1	X					S	
SACM	282		1.0	*	0.1	X					S	
ACM	283	1.0		180	0.3	X					A	2
ACM	284	1.0		180	0.3	X		X			A	2
ACM	285	1.0		180	0.3	X					A	2
ACM	286	1.0		180	0.3	X		X		X	A	2
SFBO	290		1.0	*	0.1	X					S	
SFBO	291		1.0	*	0.1	X					S NS	
FBO	292	1.0		365	0.3	X		X			A	1
FBO	293	1.0		365	0.3	X				X	A (NS)	1
SFCLP	295		1.0	*	0.1	X					S	

COMBAT READY												
STAGE	**CODE**	**HRS**	**SIM HRS**	**REFLY INT**	**CRP**	**T**	**C**	**R**	**M**	**E**	**CONDITION**	**# OF A/C**
FCLP	296	1.0		365	0.5	X		X		X	A	1
SCQ	297		1.0	*	0.1	X					S	
CQ	298	1.0		365	0.5	X		X		X	A	1
SUB TOTAL 200		37.2	30.5		15.0							
TOTAL 100		73.4	76.8		60.0							
TOTAL 100 & 200		110.6	107.3		75.0							

Figure 2. – Refly Interval and Combat Readiness Percentage

COMBAT QUALIFICATION												
STAGE	**CODE**	**HRS**	**SIM HRS**	**REFLY INT**	**CRP**	**T**	**C**	**R**	**M**	**E**	**CONDITION**	**# OF A/C**
SPT	310		1.0	*	0.5	X					S	
SPT	311		1.0	*	0.5	X					S	
PT	312	1.0		90	1.0	X					A	2
PT	313	1.0		90	1.0	X					A NS	2
PT	314	1.0		90	1.0	X		X			A	2
PT	315	1.0		90	1.0	X					A (N)	2
PT	316	1.0		90	1.0	X		X			A (N)	2
PT	317	1.0		90	1.0	X		X		X	A NS	2
CAS	340	1.0		365	1.3	X					A (N)	2
AR	341	1.0		270	1.3	X					A (N)	3
AI	342	1.0		365	1.3	X				X	A (N)	2
AS	343	1.0		180	1.3	X		X			A	4
AS	344	1.0		365	1.3	X				X	A NS	4
ASE	360	1.0		365	1.5	X				X	A NS	2
SFCLP	390		1.0	*	0.25	X					S N	
SFCLP	391		1.0	*	0.25	X					S NS	
FCLP	392	1.5		365	0.75	X		X		X	A N	1
FCLP	393	1.5		365	0.75	X		X		X	A NS	1
SCQ	394		1.0	*	0.25	X					S N	
SCQ	395		1.0	*	0.25	X					S NS	
CQ	396	1.5		365	0.75	X		X		X	A N	1
CQ	397	1.5		365	0.75	X		X		X	A NS	1
ACM	399	1.0		*	1.0	X		X		X	A NS	1
SUB TOTAL 300		19.0	6.0		20.0							
TOTAL 100 & 200		110.6	107.3		75.0							
TOTAL 100, 200 & 300		129.6	113.3		95.0							

Figure 2. – Refly Interval and Combat Readiness Percentage

FULL COMBAT QUALIFICATION												
STAGE	**CODE**	**HRS**	**SIM HRS**	**REFLY INT**	**CRP**	**T**	**C**	**R**	**M**	**E**	**CONDITION**	**# OF A/C**
SNS	420		1.0	*	0.1	X					S NS	
SNS	421		1.0	*	0.1	X		X			S NS	
NS	422	1.0		180	0.2	X					A NS	2
NS	423	1.0		180	0.2	X		X			A NS	2
NS	424	1.0		180	0.2	X					A NS	2
NS	425	1.0		180	0.2	X		X		X	A NS	2
AI	440	1.0		365	0.3	X				X	A NS	2
CAS	441	1.0		365	0.6	X				X	A NS	2
AI	442	1.0		180	0.3	X					A (N)	4
AI	443	1.0		365	0.3	X					A (N)	4
AR	444	1.0		180	0.6	X					A (N)	4
AI	445	1.0		365	0.3	X					A (N)	4
ACM	470	1.0		365	0.2	X					A	2
ACM	471	1.0		365	0.2	X				X	A	4
LFE	480	1.5		365	0.3	X		X		X	A	4
LFE	481	1.5		365	0.3	X				X	A NS	4
SCAR	490	1.3		365	0.3	X		X		X	A	3
SCAR	491	1.3		365	0.3	X		X		X	A NS	3
SUB TOTAL 400		17.6	2.0		5.0							
TOTAL 100, 200 & 300		129.6	113.3		95.0							
TOTAL 100, 200, 300 & 400		147.2	115.3		100.0							

INSTRUCTOR UNDER TRAINING												
STAGE	**CODE**	**HRS**	**SIM HRS**	**REFLY INT**	**CRP**	**T**	**C**	**R**	**M**	**E**	**CONDITION**	**# OF A/C**
SIUT	500		1.0		0.0					X	S	
SIUT	501		1.5		0.0					X	S	
SIUT	502		1.5		0.0					X	S	
SIUT	503		1.5		0.0					X	S	
SIUT	504		0.5		0.0					X	S	
SIUT	505		1.0		0.0					X	S	
IUT	506	1.5			0.0					X	A	1
IUT	507	1.5			0.0					X	A	2
IUT	508	1.5			0.0					X	A	4
IUT	509	1.5			0.0					X	A	4
SIUT	510		1.5		0.0					X	S	
SIUT	511		1.5		0.0					X	S	
IUT	512	1.5			0.0					X	A	1
IUT	513	1.5			0.0					X	A	2
SIUT	514		1.5		0.0					X	S	
SIUT	515		1.5		0.0					X	S	
IUT	516	1.5			0.0					X	A	2
IUT	517	1.5			0.0					X	A	2
IUT	519	1.5			0.0					X	A	2
IUT	520	1.5			0.0					X	A	2
IUT	522	1.5			0.0					X	A	1
IUT	523	1.5			0.0					X	A	1
IUT	524	1.5			0.0					X	A	1
SIUT	525		1.5		0.0					X	S	
IUT	526	1.5			0.0					X	A	1
SIUT	527		1.5		0.0					X	S	
SIUT	528		1.5		0.0					X	S	
SIUT	529		1.5		0.0					X	S	
IUT	530	1.5			0.0					X	A	1
IUT	533	1.5			0.0					X	A	2
IUT	534	1.5			0.0					X	A	3
SIUT	536		1.5		0.0					X	S	
SIUT	538		1.5		0.0					X	S	
IUT	539	1.5			0.0					X	A	2
SIUT	540		1.5		0.0					X	S	
SIUT	543		1.5		0.0					X	S	
IUT	544	1.5			0.0					X	A	1
IUT	546	1.5			0.0					X	A	2
SIUT	547		1.5		0.0					X	S	
SWTO	550		1.0		0.0					X	S	

INSTRUCTOR UNDER TRAINING												
STAGE	**CODE**	**HRS**	**SIM HRS**	**REFLY INT**	**CRP**	**T**	**C**	**R**	**M**	**E**	**CONDITION**	**# OF A/C**
SWTO	551		1.0		0.0					X	S	
SWTO	552		1.0		0.0					X	S	
SWTO	553		1.0		0.0					X	S	
WTO	554	1.0			0.0					X	A	2
WTO	555	1.0			0.0					X	A	2
SLATI	560		1.0		0.0					X	S	
SLATI	561		1.0		0.0					X	S	
LATI	562	1.0			0.0					X	A	2
LATI	563	1.0			0.0					X	A	2
LATI	564	1.0			0.0					X	A	2
SACTI	570		1.0		0.0					X	S	
ACTI	571	1.0			0.0					X	A	2
ACTI	572	1.0			0.0					X	A	2
ACTI	573	1.0			0.0					X	A	2
NSI	582	1.0			0.0					X	A NS	2
NSI	583	1.0			0.0					X	A NS	2
SUB TOTAL 500		10.3	13.0		0.0							

REQUIREMENTS, QUALIFICATIONS & DESIGNATIONS												
STAGE	**CODE**	**HRS**	**SIM HRS**	**REFLY INT**	**CRP**	**T**	**C**	**R**	**M**	**E**	**CONDITION**	**# OF A/C**
REQ	600		1.5	365	0.0					X	S/A	
REQ	601		1.5	365	0.0					X	S/A	
QUAL	610	0.0		180	0.0							
QUAL	611	0.0		365	0.0							
QUAL	612	0.0		365	0.0							
QUAL	613	0.0		180	0.0							
QUAL	614	0.0		90	0.0							
QUAL	615	0.0		180	0.0							
QUAL	616	0.0		90	0.0							
QUAL	617	0.0		365	0.0							
QUAL	618	0.0			0.0							
CSC	620	0.0		365	0.0							
CSC	621	0.0			0.0							
CSC	622	0.0		60	0.0							
CSC	623	0.0		180	0.0							
CSC	624	0.0		90	0.0							

REQUIREMENTS, QUALIFICATIONS & DESIGNATIONS												
STAGE	CODE	HRS	SIM HRS	REFLY INT	CRP	T	C	R	M	E	CONDITION	# OF A/C
CSC	625	0.0		180	0.0							
CSC	626	0.0		180	0.0							
CSC	627	0.0		180	0.0							
CSC	628	0.0		365	0.0							
CSC	629	0.0		180	0.0							
CSC	630	0.0		180	0.0							
CSC	631	0.0		365	0.0							
CSC	632	0.0		365	0.0							
CSC	633	0.0		365	0.0							
CSC	634	0.0		365	0.0							
CSC	635	0.0		365	0.0							
CSC	636	0.0		90	0.0							
CSC	637	0.0		180	0.0							
CSC	638	0.0		365	0.0							
DESIG	641	1.0			0.0					X	A	2
DESIG	642	1.0			0.0					X	A	2
DESIG	643	1.0			0.0					X	A	2
DESIG	644	1.0			0.0					X	A	2
DESIG	645	1.0			0.0					X	A	2
DESIG	646	1.0			0.0					X	A	2
DESIG	647	1.0			0.0					X	A	2
DESIG	648	1.0			0.0					X	A	2
DESIG	649	1.0			0.0					X	A	2
DESIG	650	1.0			0.0					X	A	2
DESIG	651	1.0			0.0					X	A	2
DESIG	652	0.0			0.0					X		
DESIG	653	1.0			0.0					X	A	4
DESIG	654	1.0			0.0					X	A	4
DESIG	655	1.0			0.0					X	A	4
DESIG	656	1.0			0.0					X	A	4
DESIG	657	1.0			0.0					X	A	4
DESIG	660	0.0			0.0							
DESIG	661	0.0			0.0							
DESIG	662	0.0			0.0							
DESIG	663	0.0			0.0							
DESIG	664	0.0			0.0							
DESIG	665	0.0			0.0							
DESIG	666	0.0	1.5		0.0					x	S	1
DESIG	667	1.5			0.0					X	A	1
TRK	670		1.5		0.0						S	

REQUIREMENTS, QUALIFICATIONS & DESIGNATIONS												
STAGE	CODE	HRS	SIM HRS	REFLY INT	CRP	T	C	R	M	E	CONDITION	# OF A/C
TRK	673	0.0		365	0.0							
TRK	674	0.0			0.0							
TRK	675	0.0			0.0							
TRK	676	0.0			0.0							
TRK	677	0.0		365	0.0							
TRK	678	0.0		365	0.0							
TRK	679	0.0		365	0.0							
TRK	680	0.0		365	0.0							
TRK	681	0.0		365	0.0							
TRK	682	0.0		365	0.0							
TRK	683	0.0		1095	0.0							
TRK	684	0.0		1095	0.0							
TRK	685	0.0		1095	0.0							
TRK	686	0.0		1095	0.0							
TRK	687	0.0		1095	0.0							
TRK	688	0.0		365	0.0							
TRK	689	0.0		365	0.0							
TRK	690	0.0			0.0							
TRK	691	0.0			0.0							
TRK	692	0.0			0.0							
TRK	693	0.0			0.0							
TRK	694	0.0			0.0							

LSO / LSI / LSS DESIGNATION AND TRACKING												
STAGE	**CODE**	**HRS**	**SIM HRS**	**REFLY INT**	**CRP**	**T**	**C**	**R**	**M**	**E**	**CONDITION**	**# of A/C**
DESIG	700	0.0		365	0.0							
DESIG	701	0.0		365	0.0							
DESIG	702	0.0		365	0.0							
DESIG	703	0.0		365	0.0							
DESIG	704	0.0		365	0.0							
DESIG	705	0.0		365	0.0							
DESIG	706	0.0		365	0.0							
DESIG	707	0.0		365	0.0							
DESIG	710	0.0		365	0.0							
DESIG	711	0.0		365	0.0							
DESIG	712	0.0		365	0.0							
DESIG	713	0.0		365	0.0							
DESIG	714	0.0		365	0.0							
DESIG	715	0.0		365	0.0							
TRK	720	0.0		365	0.0							
TRK	721	0.0		365	0.0							
TRK	722	0.0		365	0.0							
TRK	723	0.0		365	0.0							
TRK	724	0.0		365	0.0							
TRK	725	0.0		365	0.0							
TRK	726	0.0		365	0.0							
TRK	727	0.0		365	0.0							
TRK	730	0.0		365	0.0							
TRK	731	0.0		365	0.0							
TRK	732	0.0		365	0.0							
TRK	733	0.0		365	0.0							
TRK	734	0.0		365	0.0							
TRK	735	0.0		365	0.0							

SORTIE UPDATE CHAINING

STAGE	EVENT	EVENTS UPDATED
FAM	201	
AAR	204	201, 620
AAR	205	201, 204, 620
AS	213	201, 622
AS	214	201, 213, 622
AS	215	201, 213, 622
LAT	223	201, 623
LAT	224	201, 213, 223, 610, 622, 623
LAT	225	201, 223, 224, 610, 623
LAT	226	201, 223, 610, 621, 623
LAT	227	201, 223, 226, 610, 621, 623
NS	232	201, 614, 624
NS	233	201, 232, 614, 624
NS	234	201, 213, 214, 232, 614, 622, 624
NS	235	201, 213, 214, 232, 234, 614, 622, 624
AI	241	201, 213, 214, 622, 625
AI	242	201, 210, 223, 224, 241, 621, 623, 625
AI	243	201, 213, 214, 232, 234, 235, 241, 614, 622, 624, 625
AR	246	201, 213, 214, 622, 626
AR	247	201, 213, 214, 232, 234, 235, 246, 614, 622, 624, 626
CAS	253	201, 213, 214, 622, 627
CAS	254	201, 213, 214, 223, 224, 253, 622, 623, 627
CAS	255	201, 213, 214, 232, 234, 235, 253, 614, 622, 624, 627
ASE	260	201, 213, 214, 246, 253, 622, 626, 627, 628

Figure 3. -- Sortie Update Chaining

STAGE	EVENT	EVENTS UPDATED
BFM	271	201, 613, 629
BFM	272	201, 271, 613, 629
BFM	273	201, 271, 272, 613, 629
BFM	274	201, 271, 272, 273, 613, 629
ACM	283	201, 271, 272, 273, 613, 629, 630
ACM	284	201, 271, 272, 273, 274, 283, 613, 629, 630
ACM	285	201, 271, 272, 273, 274, 283, 284, 613, 629, 630
ACM	286	201, 271, 272, 273, 274, 283, 284, 285, 613, 629, 630
FBO	292	201, 631
FBO	293	201, 292, 631
FCLP	296	201, 632
CQ	298	201, 296, 611, 632, 634
PT	312	201, 616, 636
PT	313	201, 232, 312, 614, 616, 624, 636
PT	314	201, 312, 616, 636
PT	315	201, 213, 214, 215, 312, 616, 622, 636
PT	316	201, 213, 214, 215, 312, 315, 616, 622, 636
PT	317	201, 213, 214, 232, 234, 235, 253, 255, 312, 313, 315, 316, 614, 616, 622, 624, 627, 636
CAS	340	201, 213, 214, 253, 622, 627
AR	341	201, 213, 214, 246, 622, 626
AI	342	201, 213, 214, 241, 283, 285, 622, 625
AS	343	201, 213, 214, 622
AS	344	201, 213, 214, 232, 234, 235, 614, 622, 624
ASE	360	201, 213, 214, 260, 614, 622, 624, 628

Figure 3. -- Sortie Update Chaining

STAGE	EVENT	EVENTS UPDATED
NS	422	201, 223, 232, 610, 614, 615, 623, 624, 637
NS	423	201, 223, 232, 422, 610, 614, 615, 623, 624, 637
NS	424	201, 223, 232, 422, 423, 610, 614, 615, 623, 624, 637
NS	425	201, 213, 214, 223, 224, 226, 232, 234, 235, 422, 423, 424, 610, 614, 615, 622, 623, 624, 637
AI	440	201, 213, 214, 223, 224, 226, 232, 233, 234, 235, 242, 422, 423, 424, 425, 610, 614, 615, 622, 623, 624, 625,
CAS	441	201, 213, 214, 223, 224, 226, 232, 233, 234, 235, 254, 422, 423, 424, 425, 610, 614, 615, 622, 623, 624, 627,
AI	442	201, 213, 214, 241, 342, 343, 622, 625
AI	443	201, 213, 214, 242, 343, 622, 623, 625
AR	444	201, 213, 214, 246, 343, 622, 626
AI	445	201, 213, 214, 241, 283, 285, 342, 343, 442, 622, 625
ACM	470	201, 271, 272, 273, 274, 283, 284, 285, 286, 613, 629,
ACM	471	201, 271, 272, 273, 274, 283, 284, 285, 286, 470, 613, 629, 630
LFE	480	201, 213, 214, 241, 342, 343, 442, 445, 622, 625
LFE	481	201, 213, 214, 232, 233, 234, 235, 241, 243, 342, 343, 344, 399, 442, 445, 480, 614, 622, 624, 625
SCAR	490	201, 213, 214, 246, 312, 315, 316, 341, 343, 444, 616, 622, 626, 636, 638
SCAR	491	201, 213, 214, 232, 234, 235, 246, 247, 312, 313, 315, 316, 341, 343, 344, 444, 614, 616, 622, 624, 626, 636,

Figure 3. -- Sortie Update Chaining

OLD	NEW1	NEW2	OLD	NEW 1	NEW 2	OLD	NEW1	NEW2	OLD	NEW 1	NEW 2	OLD	NEW 1	NEW 2
1	1		107	20		165	172		259	280		363	423	
2	2		108	21		166	172		260			364	424	
3	3		109	22		167	173		261	281		365	425	
4	4		110	25		168	173		262	282		370	290	
5	5		111	26		169	234		263	282		371	291	
6	6		112	27		170	235		264	271		372	292	
7	7		113	28		171	180		265	272	273	373	293	
8	8		114	29		200	200		266	274		400	445	
9	9		115	31		201	185		267	283		401	480	
10	10		116	32		202	185		268	284	285	402	481	
11	11		117	33		203	201		269	342		410	480	
12	12		118	43		204	202		270	170		420	292	
13	23		119	44		205	203		271	170		500	500	504
14	24		120	52		206	203		272			501		
15	30		121	53		207	204		273	230		502	502	
16	40		122	54		208	205		274	231		503	503	
17	41		123	55		210	210		275			504		
18	42		124	61		211	211		276			505		
19	45		125	62		212	212		277			506		
20	50		126	63		213	212		278	232		507		
21	51		127	64		214			279	233		508		
22	60		128	82		215	213		280	234		509		
23	80		129	83		216	214		281	235		510		
24	81		130	84		217	215		282	243		511		
25	90		131	70		218			283	247		512		
26	91		132	71		219			284	255		513		
27	92		133	72		220	220		285	255		514		
28	125		134	73		221	221		290	295		515		
29	100		135	74		222			291	390		520	560	
30	101		136	75		223	223		292	296		521	561	
31	102		137	76		224	224		293	392		522		
32	103		138	93		225	225		294	297		523	562	
33	104		139	94		226	226		295	394		524	563	
34	112		140	105		227	206		296	298		525	564	
35	116		141	106		228			297	396		530	550	
36	130		142	107		229	206		310	241		531	551	
37	131		143	108		230	240		311	242		532	552	
38	135		144	109		231	242		312	246		533	553	
39			145	113		232	245		313	253		534	554	
40	140		146	114		233			314	254		535	555	
41	141		147	117		234	250		315	247		540	571	
42	110		148	118		235			316	255		541	572	
43	150		149			236	241		320	260		542	573	
44	151		150	120		237	242		330	274		550		
45	152		151	121		238	246		331	274		551	582	
46	160		152	132		239	341		332	286		552	583	
47	170		153	136		240	253		333	342		553		
48	230		154	142		241	254		340			600	600	
49	231		155	143		242	260		341			601	601	
50	185		156	144		250	270		342			602	666	
51	190		157	111		251	275		350	343		603	667	
100	13		158	153		252	185		351	442		620	690	
101	14		159	154		253	276		352	443		621	691	
102	15		160	155		254			353	444		622	694	
103	16		161	156		255	277		354			623	693	
104	17		162	157		256	278		360	420		630	688	
105	18		163	157		257			361	421		631	687	
106	19		164	161		258			362	422		632		

OLD	NEW1	NEW2	OLD	NEW 1	NEW 2	OLD	NEW1	NEW2	OLD	NEW 1	NEW 2	OLD	NEW 1	NEW 2
633				530			657							
	115			533			660							
	119			534			661							
	158			536			662							
	171			538			663							
	174			539			664							
	222			540			665							
	227			543			692							
	243			544										
	247			546										
	251			547										
	252			570										
	279			610										
	286			611										
	310			612										
	311			613										
	312			614										
	313			615										
	314			616										
	315			617										
	316			618										
	317			620										
	340			621										
	344			622										
	360			623										
	391			624										
	393			625										
	395			626										
	397			627										
	399			628										
	440			629										
	441			630										
	470			631										
	471			632										
	490			633										
	491			634										
	501			635										
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